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### UROGENITAL TUBERCULOSIS.

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UROGENITAL TUBERCULOSIS may be considered under the following three heads: (i.) Urinary tuberculosis in which the kidney, ureter and bladder are affected; (ii.) genital tuberculosis which involves the epididymis, testicle, *vasa deferentia*, *vesiculae seminales* and prostate; (iii.) urogenital tuberculosis in which both systems and the urethra are diseased.

It is important to regard the disease as a disease of a system, either the urinary system or the genital system, and not as a disease which affects one organ; for though tuberculous infection does start as a localized infection of one organ, the tendency is for the infection to spread through the whole system and it inevitably does this sooner or later. As a matter of fact the spread starts early and is almost always present when the patient first seeks advice. Also it is a common experience to see cases in which

one part of the system has been removed on account of tuberculous infection, and in which tuberculous lesions appear throughout the remainder of the system at a later date, even after several years' freedom from any symptoms or signs of disease.

### URINARY TUBERCULOSIS.

Tuberculosis of the urinary system is always primary in the kidney.

Primary tuberculous cystitis almost certainly never occurs. I propose to deal only with chronic tuberculous infections and acute miliary tuberculosis of the kidneys which is part of a general miliary tuberculosis, will not be further referred to.

Renal tuberculosis is always secondary to some other focus of tuberculous infection such as a lesion in the lung, tuberculous adenitis, arthritis or osteitis. The organisms are carried to the kidney by the blood stream and most of them are arrested in the glomeruli and pass into the lumina of the renal tubules. It is not very uncommon for these bacilli to be excreted in the urine as a temporary tuberculous bacilluria, the organisms failing to become established in the kidney and to produce the characteristic tuberculous lesion. Where a tuberculous

nephritis is produced, however, it is generally in the neighbourhood of the convoluted tubules that the lesion starts and from here it spreads in all directions and very soon reaches the pelvis at the tip or along the side of a papilla and so a tuberculous pyelitis is established. Spread of the disease occurs rapidly throughout the whole pelvis, down the ureter and to the bladder in the vicinity of the ureteric orifice. Extension of the disease also occurs from the renal pelvis throughout the kidney, both by direct spread and ulceration and also by the bacilli being carried back into the kidney substance from the pelvis by the lymphatics in such a way that multiple foci of disease are established through the kidney. I would emphasize the importance of the early involvement of the renal pelvis as the early symptoms that the patient complains of and the characteristic appearances in the bladder are due to this fact. It is true that in a small percentage of cases the lesion in the kidney remains deep in the renal substance and the pelvis escapes for a long time. These cases are rare and in them the characteristic symptoms and signs are absent and hence the diagnosis is very difficult indeed.

I do not propose to describe in detail the advanced disease in the kidneys; time will permit me to mention only several of the more important pathological features.

The kidney is gradually destroyed until finally it ceases to perform any excretory function at all and if both kidneys are involved, death takes place from uræmia.

In a few cases in which the whole kidney is destroyed, the caseous material dries and may become calcified; this is the nearest approach to cure which ever occurs naturally and even this may become active at any time and cause spread of the disease to other organs.

Perinephritis occurs in every case sooner or later and may manifest itself as a perinephritic abscess or merely as a condensed and sclerosed fatty capsule of the kidney. This may make the removal of the kidney a very difficult matter.

Further, the changes in the ureter are important. This duct becomes very much thickened, so thick in fact that it can often be felt during the clinical examination of the patient. Stricture is also very liable to occur; this happens more often at the uretero-pelvic junction and a tuberculous pyonephrosis is produced.

Lastly, the condition of the "healthy" kidney is most important. Even if the tuberculous infection is unilateral, the sound kidney often suffers from a toxic spoiling, so that the urine from this kidney contains albumin and even casts. One can rely with confidence on this condition clearing up completely after removal of the tuberculous kidney.

Urinary tuberculosis is uncommon in childhood and in old age; the large majority of cases occur between the ages of twenty and forty years. The disease may be slightly more common in males than females, though statistics vary on this point.

#### Symptoms and Signs.

The most common and the earliest symptom and the one for which the patient usually consults the doctor, is irritability of the bladder and frequency of micturition. The onset of this trouble is gradual and insidious and frequency has generally been present for several months before the patient seeks relief. The frequency of micturition gradually increases until it is necessary for the patient to pass urine every hour or even every half hour. This is often associated with pain. The pain may be felt during micturition in the perineum or at the end of the act in the perineum or above the pubes. The increased frequency is at first diurnal only, but soon becomes nocturnal as well. This may be the only symptom complained of for a very considerable time.

In cases in which the involvement of the bladder is extensive, pain during micturition and tenesmus may be very severe indeed.

Pain in the loin is a fairly common symptom. It is generally present as a constant dull ache and may be aggravated by certain postures, for example, by lying on the affected side. This is fairly constant and severe if there is perinephritis or pyonephrosis. From time to time the passage of blood or caseous material down the ureter causes severe renal colic which is similar to that caused by a renal calculus.

Pain sometimes occurs in the loin on the side of the "healthy" kidney. This is due to compensatory hypertrophy of the sound kidney and consequent stretching of the capsule. At times, also, this kidney is palpable and in such cases it is easy to make an error in diagnosing which is the diseased kidney if a cystoscope is not used.

Hæmaturia is the first symptom and may be the only symptom in a very small but definite group of cases. Thompson Walker mentions a case in which there were no other symptoms for two years and in a case of my own several months elapsed between the first attack of bleeding and the removal of the kidney and during this time there were no other symptoms or signs whatever. These are cases of deep renal tuberculosis in which the pelvis and ureter escape early infection and for this reason there is no frequency of micturition and tubercle bacilli may not be found in the urine on several examinations.

Hæmaturia as a rule is variable and slight in amount, occasionally the bleeding is free and then renal colic may be present.

When the bladder becomes ulcerated, there may be terminal hæmaturia.

I have said that the usual mode of onset is insidious and extends over months and that the symptom generally complained of is a gradually increasing frequency of micturition. Occasionally the first symptom is painless hæmaturia. I have seen one patient with a very surprising onset.

The patient was a woman, aged thirty-two years, who complained of an acute attack, coming on in one day, of severe left sided renal colic and micturition every few minutes. The attack continued for a week and then the symptoms cleared up almost completely. I saw her a month later and diagnosed a simple pyelonephritis on her

clinical history. An examination of the urine, however, revealed numerous tubercle bacilli. The acute onset of the symptoms may have been due to a deep caseous cavity rupturing into the renal pelvis.

The changes in the urine are as a rule very definite. There is at first a polyuria and this comes from the diseased kidney. The urine is of low specific gravity and the acidity is diminished. Such a state of the urine occurring in a young adult would warrant a careful watch being kept on the patient and in a certain number tubercle bacilli would be found in the urine within a month or two. The urine also contains albumin and even casts and these come from the "healthy" kidney.

The presence of pus cells in any number without organisms being found is most suspicious of a tuberculous infection and in such cases repeated examination of the urine very often puts the diagnosis beyond doubt by revealing the presence of tubercle bacilli.

Blood in the urine has been referred to and I would only mention that red blood cells can almost always be demonstrated by the microscope.

A tumour is not a common sign in urinary tuberculosis. As a matter of fact the kidney may be much smaller than normal. A tumour may however be felt in the following conditions: (i.) Tuberculous pyonephrosis; (ii.) a perinephric abscess and (iii.) compensatory enlargement of the healthy kidney.

The thickened ureter may be felt exceptionally through the abdominal wall in thin subjects and very often in women in the lateral fornices of the vagina. A case of suspected urinary tuberculosis can be investigated thoroughly only by means of the cystoscope and ureteral catheterization and disaster is certain to follow treatment in cases which have not been completely investigated. With the cystoscope characteristic lesions may be seen in the bladder, namely, tuberculous ulcers and nodules, red, thickened and ulcerated ureters and "dragged out" ureters.

Sometimes these appearances are so unmistakable that not only can tuberculous disease be diagnosed, but also which kidney is diseased can be ascertained with reasonable certainty. In other cases, however, the appearances are not typical and the diagnosis remains in doubt until the tubercle bacilli are found. In every case both ureters must be catheterized as it is all important to discover if the tuberculous infection is still confined to one kidney or if it has extended to both. Also the function of the "healthy" kidney must be investigated to ascertain if it is sufficient by itself for the needs of the patient. The routine I have in such cases, is as follows. The patients are examined in the morning at about 9 o'clock and one hour before examination they are given fifteen grammes of urea in one hundred cubic centimetres of water. On the introduction of the cystoscope six milligrammes of phenolsulphonphthalein are injected into the muscle. Both ureters are catheterized and the urine is collected from each kidney. The specific gravity and reaction of each specimen of urine is taken and each is examined for albumin, pus cells and tubercle

bacilli. The function of the "healthy kidney" is accurately estimated by the percentage of urea and by the time of the appearance of the phenolsulphonphthalein in the urine.

An X ray examination is usually made in the course of a routine examination of a patient in whom renal disease is suspected, and I would point out that a shadow in the renal area does not necessarily indicate a calculus. On several occasions I have seen quite dense shadows cast by calcified areas in a tuberculous nephritis and I have seen an operation performed on such a patient under the impression that a calculus was present.

The clinical condition of patients in the late stage of the disease is unmistakable and does not warrant a detailed description. The cachexia, sweating and pyrexia indicate a tuberculous infection and the painful frequent micturition entailing loss of sleep and allowing little rest to the patient, the hæmaturia and development of abscesses make a picture which is as distressing as it is typical.

#### Treatment.

The treatment may be considered under several headings.

##### *Non-operative Treatment.*

All patients should be placed under good hygienic conditions and both before and after operation should live in the open air, have as much sunshine as possible and be encouraged to take a full and nourishing diet.

I believe that treatment with tuberculin is of distinct benefit in urogenital tuberculosis and this should be continued for some time after operation.

##### *Operative Treatment.*

In cases in which one kidney is healthy, and in which there is no active tuberculous lesion elsewhere, the treatment is undoubtedly complete excision of the kidney and of as much of the ureter as can be removed without prolonging the operation too much.

In patients with tuberculous infection of both kidneys the treatment can be only conservative. Excision of the kidney should never be performed. I have heard of one or two exceptional cases in which there was very early disease of one kidney and advanced disease of the other one, and in these cases the more diseased kidney was removed with great reduction in the toxæmia and consequent improvement of the patient. Such cases must be very exceptional and the principle holds that bilateral infection of the kidneys is an absolute contraindication to operation. A toxic nephritis of the "healthy" kidney without tuberculous infection is no contraindication. It is found that the albumin and casts in the urine disappear soon after the infected kidney is removed.

In cases of tuberculosis of the kidney with active tuberculous disease elsewhere it is most difficult to decide whether a nephrectomy will benefit the patient. In vesical and ureteral disease nephrectomy should, of course, be performed, as it is found that the lesions in the bladder and ureter gradually heal



up after the removal of the kidney. Genital tuberculosis of moderate extent does not contraindicate nephrectomy, as this can be treated by epididymectomy at the same time or by tuberculin subsequently. In such cases improvement occurs.

Extensive genital disease, however, is a definite contraindication to nephrectomy and when prostate, *vesiculæ seminales* and one or both epididymes are infected, I doubt very much whether removal of a tuberculous kidney will prolong the patient's life.

Old healed tuberculous lesions such as ankylosed joints or obsolete foci in lungs or glands do not contraindicate operation, but nephrectomy should not be performed in the presence of active disease in the lungs, spine or joints or in patients with tuberculous abscesses elsewhere in the body. The risk of general tuberculosis under such circumstances is very great.

I do not intend to discuss the operation in detail. I will refer only to one or two points of technique in the excision of the kidney.

The retroperitoneal route is the one which is invariably employed. The question of how to deal with the ureter is one which always causes some thought. As I pointed out when dealing with the pathology of the disease, the ureter is almost always diseased and so it should in theory always be removed. Some surgeons advocate and practise complete removal. The practical objection to such a course is that these patients have not very much reserve strength and are not very good subjects for operation and in many cases, probably in the great majority, the increase in the extent of the operation which a complete removal of the ureter entails, would add so greatly to the risk that the immediate mortality would be considerably raised. The majority of surgeons are content to compromise and remove only as much of the ureter as possible without appreciable extension of the operation. The cut end of the ureter should be cauterized or treated with pure carbolic acid and ligatured.

A great trouble with these cases after operation is the persistence of a sinus or the failure of the wound to heal. This is presumably due in part at least to infection of the wound from the end of the ureter and occurs in as many as 75% of the cases. To obviate this it has been advised and practised by some surgeons to close the wound without drainage and it is stated that better results have followed this practice. In my own cases I have always drained for at least twenty-four hours, but I intend to try closure without drainage in future.

#### Results of Treatment.

The immediate operative mortality is now very low, amounting to between 2% and 3%. Death occurs in about 10% during the two years following operation and this is due as a rule to extension of the disease to the other kidney. The prospect of life after two years is good, only about 3% dying from renal tuberculosis after this period.

The symptoms, namely, frequency of micturition and perhaps some pain and bleeding persist for some months after nephrectomy, but gradually

clear up as a rule. If they do not do so, it is due to persistence of the disease in the bladder and end of the ureter and it may be necessary to operate again and excise what remains of the ureter.

#### GENITAL TUBERCULOSIS.

In the genital system tuberculosis may be primary either in the epididymis or the prostate, much more often in the former. In whichever organ, however, the disease first starts, it sooner or later spreads till it involves all parts of the system, namely, the *corpus testis*, as well as the epididymis, the *vas deferens*, the *vesiculæ seminales*, the prostate and the urethra.

Primary tuberculous epididymitis occurs in two forms, the acute and the chronic. The acute infection is not common, but is important because owing to the severe pain, rapid swelling, redness of the scrotum and tenderness it is generally diagnosed as gonococcal epididymitis and the true nature of the disease is not suspected till several weeks later when the inflammation fails to subside and when abscesses and sinuses develop.

Chronic tuberculous epididymitis is the usual form of this disease. The painless, craggy nodules which develop very slowly, are familiar to everyone and I do not propose to take up your time enumerating the clinical signs of this disease.

There are several features, however, that have not received the attention that their importance warrants. The first is that the *corpus testis* is involved far more often than one would be led to believe by statements in books and from the frequency with which epididymectomy is performed. In my experience the disease has spread to the corpus in a considerable number of cases, so that in operating on these patients one can remove the epididymis alone with safety in a minority of cases.

Another fact of importance is that the prostate is very often involved, even though there is no palpable disease in the *vas deferens*. An examination of the prostate is necessary in every case.

Tuberculous prostatitis may occur as a primary infection or as a result of secondary infection from the epididymis. The *vesiculæ seminales* are generally involved in the disease as well. The symptoms are not pronounced and in fact may be absent altogether. If present, they are pain in the perineum, increased frequency of micturition and perhaps slight hæmaturia. Its recognition depends on an examination of the prostate *per rectum* as a routine.

The urethra becomes involved in the disease in many cases. It is ulcerated and there is more or less periurethritis. The symptoms of such involvement are urethral discharge in which the tubercle bacilli can be found, severe scalding and pain on micturition, frequency of micturition and bleeding from the urethra. I saw one patient in whom the ulceration extended into the penile portion of the urethra and was readily seen by means of the urethroscope.

The treatment of genital tuberculosis is to my mind a matter of great difficulty and I do not



think that our results are good. In this view I differ from many surgeons and most writers who to judge from their statements appear to regard this disease not very seriously.

The methods of treatment are the following:

(i.) Hygienic and tuberculin treatment should be employed in every case, if an operation has been performed or not.

(ii.) Epididymectomy or orchidectomy with removal of as much of the vas as is possible through the inguinal incision can, if necessary, be performed on both sides. As I mentioned before in my experience the disease has spread to the *corpus testis* in the majority of cases, so that an epididymectomy is inadequate.

(iii.) Removal of the whole genital system, namely, both testicles, *vasa deferentia*, *vesiculae seminales* and prostate, has been advocated strongly by Young who has devised an operation by which the whole system can be removed through combined inguinal and perineal incisions. The principle of complete removal is undoubtedly on pathological grounds a sound one, but the practical objections to it are very weighty, namely, the resulting mutilation, the severity of the operation, the urinary fistula in the perineum which occurs in many cases at least, and the risk that even after this extensive operation the disease may not be cured. I have not seen any published results of this procedure and my own experience is confined to two cases of perineal resection of the prostate and *vesiculae seminales* in which the testicles had been removed at a previous operation.

One of these patients died and the other developed a perineal fistula.

(iv.) Thompson Walker has devised a suprapubic, transvesical resection of the prostate and *vesiculae seminales*. The bladder is widely opened and the prostate is removed in the ordinary way. Then the dissection is carried back through the base of the bladder and each vesicle is removed. I have had no experience of this operation.

#### Prognosis.

I am very pessimistic with regard to the outlook in genital tuberculosis. I have seen recurrence of the disease in men in whom an apparent cure for several years (in one case for seven years) had followed castration, and I am constantly seeing men in whom the whole system is infected, the prostate being so extensively diseased as definitely to contraindicate removal of the testicles only.

In the majority of such cases it is futile to attempt to get beyond the disease which may have spread to the urethra, the base of the bladder and possibly even to the kidneys.

#### UROGENITAL TUBERCULOSIS.

In the urogenital type of the disease both systems are involved, the infection starting in either one and spreading to the other. After what I have said already a further description of this condition is unnecessary.

The treatment is in the later stages almost always palliative and symptomatic only and apart from general hygienic treatment consists in aspirating abscesses as they arise and in performing a suprapubic cystostomy or a nephrostomy to relieve painful and frequent micturition.

#### BACKACHE FROM THE RADIOLOGICAL ASPECT WITH SPECIAL REFERENCE TO THE DEMONSTRATION OF THE EARLIER, MORE ACUTE STAGES OF SPONDYLITIS DEFORMANS.<sup>1</sup>

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It is proposed to omit all reference to such well recognized lesions as tuberculosis, malignant disease and fractures and to present some of the more obscure, less known, but much more common causes of backache.

#### Spondylolisthesis.

The first of these lesions to be discussed is that of spondylolisthesis (Greek—*σπόνδυλος*, a vertebra and *όλισθησις*, a slipping), practically confined to the slipping downwards and forwards of the last lumbar vertebra on the sacrum. As the lateral view (see Figure I.) shows, the whole weight of the body is supported at the lumbo-sacral joint on a small inclined plane making an angle of about 45° to the horizontal. The only "positive" obstruction to forward and downward slipping is presented normally by the articular processes of the sacrum. On the average the articular facets of the latter make an angle of about 65° with the median sagittal plane. In individual cases, however, they vary from a plane at right angles to the latter to one parallel to it, the latter corresponding to the lumbar type of articulation which allows of free antero-posterior flexion; the facets are so placed that the antero-posterior view looks directly into the articular interspace which is seen on the film as a short straight line parallel to the axis of the spinal column (see Figure II.).

It is clear that in the latter case the sacral articular processes are of no assistance in preventing slipping of the weight-bearing fifth lumbar vertebra forward and down the inclined plane of the articular surface of the sacrum. The whole of the strain has to be borne by the ligaments. Any stretching or tearing of these ligaments will produce a spondylolisthesis.

There is further a wide variation in the uprightness or flatness of the sacral facets referred to the plane of the adjacent articular surface of the sacrum, quite apart from the angle these facets make with the median sagittal plane. Even if the latter angle is normal, a flat facet will permit overriding of the fifth lumbar vertebra, with consequent stretching of the ligaments and persistent pain.

<sup>1</sup>Read at a meeting of the Ballarat Subdivision of the Victorian Branch of the British Medical Association on March 6, 1926.

That spondylolisthesis is a real thing is shown clearly in Figure I. The line to go by is that of the dorsal surfaces of the vertebral bodies, *id est* of the ventral wall of the spinal canal. Normally there is perfect alignment. The slightest relative displacement of the fifth lumbar vertebra on the sacrum breaks this curve. In Figure I. the displacement is seen to be at least six millimetres (a quarter of an inch).

The patient dated her backache from a pregnancy about thirteen months previously. Evidently the potentiality was always present in the shape of articular processes insufficient in themselves to prevent slipping; with relaxation or stretching of the ligaments probably during or at the time of pregnancy the spondylolisthesis occurred.

In others, however, one articulation only may tend to be of the lumbar type or flat or a combination of both, whilst the articulation on the other side shows the normal sacral formation (similar to those between the fifth and sixth lumbar vertebrae in Figure II.). Here slipping can occur only at the former articulation, resulting in partial forward rotation of the vertebra round the articulation of the normal "sacral" type.

Bowman, of Los Angeles,<sup>(1)</sup> and Magnuson, of Chicago,<sup>(2)</sup> have discussed recently this condition of spondylolisthesis. Bowman states that since he has started looking for it systematically, during several months preceding the writing of his paper, he has found the lesion to be exceedingly common, having seen as many as three cases in one week. The majority of these were the results of falls; others from lifting heavy loads, cranking up cars and so forth. A few patients gave no history of injury, but of a gradual onset that grew progressively worse. The symptoms, he states, are often not so severe as one would expect with this type of lesion, but are prone to get progressively worse after injury. He also considers that many of the cases now diagnosed as sacro-iliac dislocations that cannot be demonstrated radiologically are in reality cases of spondylolisthesis.

A further factor in weakening the lumbo-sacral articulation is the frequency of anatomical defects in the neural arch. A frequent type is that commonly called "*spina bifida occulta*." Grosser deformations, such as complete separation of the lamina at its base from the body on one or both sides, are by no means rare. Magnuson<sup>(2)</sup> quotes Willis<sup>(3)</sup> as finding in an anatomical examination of 748 spines one or other type of incomplete neural arch in thirty-one or over 4%.

These defects in the presence of inefficient types of articulation lead to further weakening of the joint and overstrain of the diminished effective ligaments with a consequent greater tendency towards displacement.

#### The Sacro-Iliac Joint.

Here there is a very great component stress parallel to the joint, the sacrum, in the shape of an inverted keystone, lying at a small angle to the

horizontal with no opposed bony articular surfaces to take the strain. The sacrum is held and maintained in position practically by the ligaments alone. The latter have to bear the whole body weight and, as Magnuson<sup>(2)</sup> points out, any condition which affects ligaments and makes them painful, will be more apparent in such an area. It is very difficult, however, to demonstrate radiologically any actual displacement.

#### Abnormal Articulations Elsewhere in the Spinal Column.

As has already been pointed out the normal lumbar type of articulation has its opposed facets more or less parallel to the median sagittal plane, whereas in the sacral and similarly the dorsal type these facets are more or less at right angles to this. Many variations, however, occur.

There was sent to me recently a schoolgirl who had developed a painful back in the region of the dorso-lumbar junction, apparently following on her strenuous sports and exercises. Following our usual practice before the X ray examination we strapped a small pellet of shot over the centre of the painful area as indicated by the patient. Examination of the film showed that all the inter-lumbar articulations were of the normal lumbar type except between the fourth and fifth. Between the twelfth dorsal and first lumbar vertebrae, however, it was seen that on the right side the articulation was lumbar in type, but on the left was of the dorso-sacral form.

Here, then, there is asymmetry of form and function. Backward and forward bending can take place freely only on the right side, whereas, to quote Palmer, "its fellow, the flat one, tries to operate at right angles." Undue stress is therefore placed on one or other of these joints, with more likelihood of pain there than elsewhere and with probably a greater tendency to secondary inflammatory changes, following stretching of the ligaments. The lead pellet placed on the patient showed in the film as a small white spot and accurately corresponded with the level of this asymmetrical pair of articulations—surely more than a coincidence. There were other variations in the lower lumbar region. Between the fourth and fifth lumbar vertebrae there was an articulation of lumbar type on one side and of sacral type on the other, while at the lumbo-sacral joint both were of the lumbar type, constituting the predisposition to spondylolisthesis already described.

#### Sacralization of the Fifth Lumbar Vertebra.

As a special case of asymmetry of articulation the very common condition of semisacralization of the fifth lumbar vertebra may be mentioned, where one of the two transverse processes is broadened out and attached to the sacrum to form a supernumerary sacral segment on that side. Here movement between the vertebra and sacrum is possible on one side and not on the other and a condition of unbalanced stresses is produced analogous to that described above.

Double sacralization, though also very common, is of less importance, as the condition is symmetrical.

A concrete case will prove probably more convincing than generalizations.

Only last week a patient, a young married woman, *ætatis* twenty-four years, a *nullipara*, presented herself complaining of continuous backache which she indicated as being situated low down in the middle line in the lumbo-sacral area. Her physician had labelled the case "hysterical" or "tired back, for want of a better term," but considered that an X ray examination followed by a "negative" report would have a beneficial mental effect. Figure II. is from one of the films taken of this patient. Far from my report being "negative," obvious abnormalities were present.

There were twelve dorsal and six lumbar vertebrae, though the transverse processes of the first lumbar vertebra were articulated, representing a pair of rudimentary ribs, so that this vertebra was really a transition form between dorsal and lumbar. The sixth lumbar vertebra is seen to be normal on the left side and sacralized on the right. But this is not all. The fifth lumbar vertebra is also involved. Its left side presents an articulation with the sixth vertebra of the normal interlumbar type, but on the right the articulation shows the lumbo-sacral or more shortly the "sacral" form. Thus in Figure II. the observer can look straight in between the facets on the left side, whilst on the right he looks on to the flat, transversely placed facets of the "sacral" articulation and almost at right angles to the articular interspace. The asymmetrical method of development is obvious.

The fifth lumbar vertebra is fourth lumbar on its left side, but fifth lumbar on its right, whilst the sixth lumbar vertebra is fifth lumbar on its left and first sacral segment on its right.

This patient is the victim of large unbalanced stresses and consequent strains not only at one level, but at two, if I may speak of articular surfaces set so steeply inclined to the horizontal as "levels." Add to this the fact that she is of very slim build with poor development of muscles and presumably also of ligaments and it would appear that I have demonstrated a sufficient physical basis for her severe backaches and for a revision of the diagnosis.

#### Spondylitis Deformans.

Finally I shall consider the condition generally known as "*spondylitis deformans*," probably the most frequent cause not only of backache, but of obscure referred pain, at times acute and often giving rise to great difficulty in diagnosis in the absence of a radiological investigation.

The appearance in skiagrams of the deformed vertebral bodies with the early lipping going on through progressive changes to complete ankylosis have been well known since the introduction of X rays. These changes are readily detected and are frequently found to be present in many patients with pain in the lumbar, dorsal and cervical regions.

This condition is often the cause of referred pain.

Walton and Luscian,<sup>(4)</sup> of the Roentgen Department of the University of Maryland, in a "report of 1,326 Roentgen examinations for suspected urinary calculi" state that the findings were "negative" in 1,113 of these cases or 84%. They go on to say that:

A study of the Roentgenograms reveals in a large number of these patients evidence of the presence of a more or less advanced form of hypertrophic arthritis of the spine and in the absence of any other causative agent, it is not unreasonable to assume that this spinal condition may have been the underlying factor.

A few weeks ago I examined with X rays a colleague who had complained for eight months of a dull aching pain on the right side below the right scapula and also over the liver anteriorly. He feared that he was the victim of a grave condition of the latter organ. The skiagram and fluoroscopy yielded no evidence that the liver was abnormal.

We then examined his dorsal spine. Gross spondylitic changes were present on the right side only and at a level that would account for the distribution of his pain. He was greatly relieved in his mind when we demonstrated the condition present and its almost certain responsibility for his symptoms.

Since the X ray examination he has written to say that he has had several "pyorrheal" teeth extracted, that the pain has quite left the previous areas, but that he has felt some pain low down in the spine about the upper end of the sacrum.

#### LEGENDS FOR ILLUSTRATIONS.

##### FIGURE I.

Lateral view of a case of spondylolisthesis, the fifth lumbar vertebra having slipped downwards and forwards through a distance of about six millimetres relatively to the sacrum.

##### FIGURE II.

Asymmetrical articulations, lumbar on the left, sacral on the right, between the fifth and sixth lumbar vertebrae, together with sacralization of the sixth vertebra on the right side, with a normal lumbar transverse process on the left. This patient complained of severe backache about the lumbo-sacral junction.

##### FIGURE III.

Acute ligamentitis as shown by swollen ligament on right side between eleventh and twelfth dorsal vertebrae, with no associated hypertrophic bone changes. This patient complained of right sided pain, attributed to either kidney or gall bladder.

##### FIGURE IV.

Dorsal spine showing all stages of "*spondylitis deformans*."

A.—Ligament passing flatly across from one vertebra to next.

B.—Slight swelling of ligament with no calcification.

C.—Swollen ligament containing a small calcified area unconnected with the adjacent spinal bodies.

D, E.—Gross lipping of adjacent vertebral edges, proceeding almost to ankylosis. At D these bony flanges can be seen to lie well inside the surface of the swollen ligament.



### The Earlier, More Acute Stage of "Spondylitis."

Lately we have been able to demonstrate the earlier, more acute stages when there is only a swelling of the spinal ligaments with no sign of any calcification in the affected soft tissue or of outgrowths from the adjacent vertebral bodies.

A patient was referred to us recently by an eminent colleague for radiological examination in connexion with right-sided abdominal pain. Both the gall bladder and right kidney were suspected as being the possible origin of the symptoms, though the pain was stated to be not typical of either. In Figure III. is shown the standard antero-posterior view we took of the kidney zone. Both kidneys appear normal. At the top of the film, however, there is to be seen a large soft tissue swelling on the right side of the articulation between the eleventh and twelfth dorsal vertebrae. There was no lipping or other deformation of the edges of the adjacent vertebrae and no calcification in the swelling. On seeing this condition we questioned the patient. He indicated his area of pain with the ulnar border of his right hand, moving the latter obliquely round his right side and the right anterior aspect of his abdominal wall parallel to the line of the corresponding thoracic nerve. The pain was of a chronic type and had been present for several months.

But this was not all. He volunteered the information that he remembered having had a similar pain many years previously that also lasted for several months and that had been in more or less the same place as the present trouble. We then examined his dorsal spine radiographically and the solution was clear. For there at the next articulation above the one with the large ligamentous swelling, was a similar swelling, also on the right side, but containing a massive spur or rather lip of bone passing into it from the adjacent lower edge of the tenth thoracic vertebra, the well-known appearance of chronic "spondylitis deformans." Here then was the original lesion which in its active days had given rise to the first period of pain, whilst immediately below at the next intervertebral disc was the acute, non-calcified swelling which is the origin of his present trouble. He is therefore correct in his belief as to the similarity of the attacks.

That the swelling is ligamentous is confirmed by other films of the dorsal spine such as is presented in Figure IV. Almost through its entire length the ligaments can be traced passing down over the surfaces of the vertebrae and across the articular fibro-cartilaginous interspaces. All stages of spondylitis can be observed in the one dorsal spine; the unaffected levels are seen where the ligament passes flatly from one vertebral body to the next; other interspaces can be recognized where there is a small convexity or swelling with no calcification; other swollen areas again exist in which are to be seen minute calcifications unconnected with either of the adjacent vertebrae and finally there are swellings into which hypertrophic flanges from the adjacent vertebral bodies have made their way, though these latter can still be seen in places covered by a definite ligamentous layer.

I have seen no reference in the literature to the demonstration of these early, non-calcified, ligamentous swellings—the pure "ligamentitis" stage; but we have already quite a collection of films in which they are to be clearly recognized and it would appear that it is in this stage of early more or less acute ligamentitis that the radiological demonstration is most valuable, the gross hypertrophic bone changes—the classical picture of "spondylitis deformans"—probably representing in many instances only the end results of a pathological condition that may have long since become inactive.

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### THE PSYCHIATRIC CLINIC.<sup>1</sup>

By SIR JOHN MACPHERSON, K.B.E., M.D., F.R.C.P.,  
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of Sydney.

I SHOULD like first of all to congratulate the managers of the Newcastle Hospital and the medical profession in this district on their enlightened enterprise in establishing a psychiatric clinic. At the same time I am not unmindful of the services of Dr. Hogg, Inspector-General of Mental Hospitals, to whose initiative and instigation I believe the suggestion was largely due.

I must add that you are very fortunate in securing the services of Dr. Bostock as the first chief of the clinic. I have had the privilege of much association with Dr. Bostock during the past three years and I have formed the highest opinion of his ability both as a psychiatrist and as a neurologist.

<sup>1</sup> Read at a meeting of the Central Northern Medical Association at Newcastle on June 16, 1926.

ILLUSTRATIONS TO DR. W. STUART CROSS'S ARTICLE.

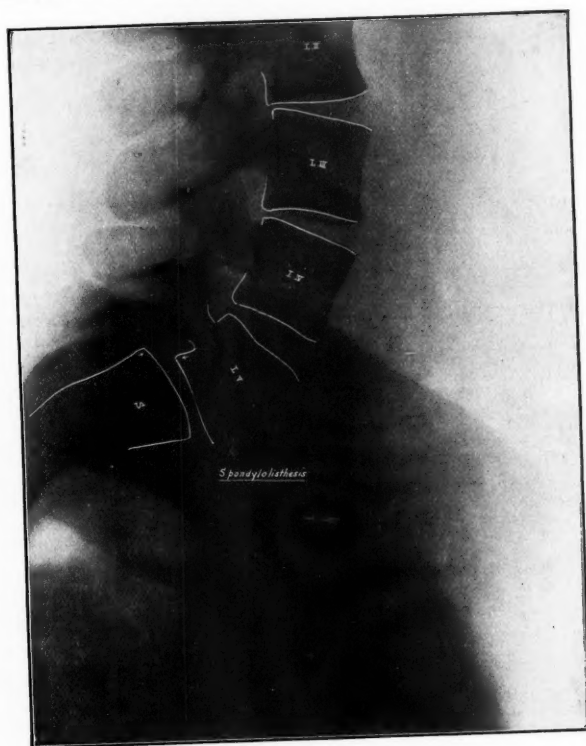


FIGURE I.

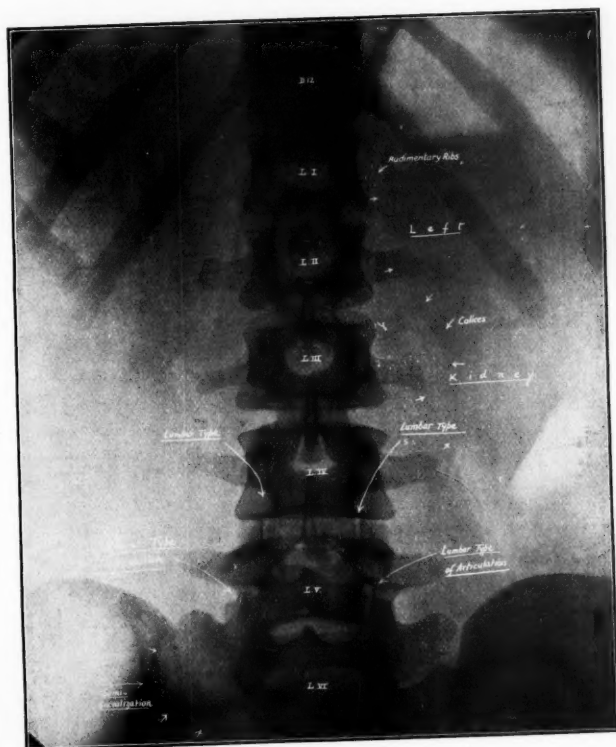


FIGURE II.

ILLUSTRATIONS TO DR. W. STUART CROSS'S ARTICLE.

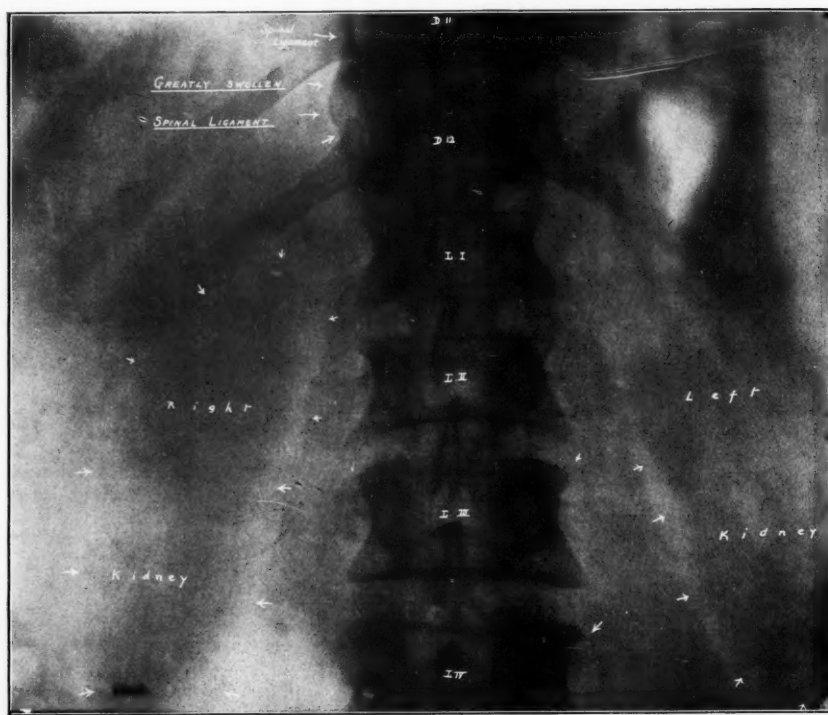


FIGURE III.

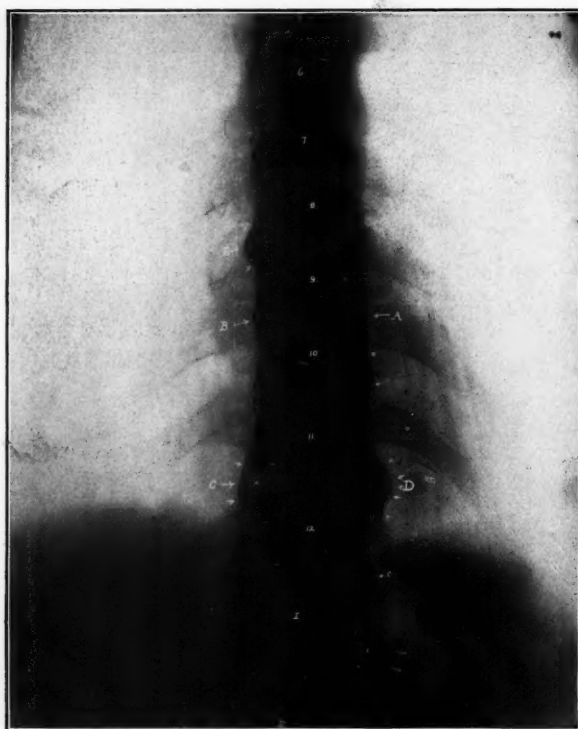


FIGURE IV.





*Charles Kitchell*

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That there should be at the present day a general movement for the establishment of psychiatric clinics is not so strange as that this movement did not take place long ago. It is true that on the continent of Europe they have long existed; more recently they have been tardily formed in America and now at last the British Empire is slowly beginning to realize their importance.

There are probably many reasons for this conservative attitude of the Anglo-Saxon people, but I shall mention only two of them. There is first of all the erroneous idea held by many members of the medical profession and by practically the whole of the general public that humanity may be divided into two classes—the sane and the insane. The insane are confined in lunatic asylums and possess no civil or political rights. The sane on the other hand are free, equal in the sight of God and man and capable of influencing the destinies of nations and empires by means of the electoral franchise. Incidentally they control for better or worse the welfare of their unfortunate fellow creatures—the insane.

The second reason, which I shall mention for this neglect of psychiatry is the fixed belief in the duality of mind and body and the irrational conception—as implied in the term “mental diseases”—that mind can become diseased. As we know nothing about the nature of mind, it is surely absurd to speak of it as diseased. When any of the modern appliances for the production or conveyance of electricity fails to operate we do not speak of a disease of electricity, but of a defect in the mechanism by which it is manifested. Similarly when nervous phenomena are disordered, we ought to endeavour to ascertain the defect in the mechanism by means of which they are manifested.

Unfortunately we are a long way from perfect knowledge in this respect, but we are slowly progressing. The real path towards this knowledge is through the laborious methods of clinical research, augmented and illumined by the sciences of anatomy, physiology, pathology and chemistry. To all of these a knowledge of psychology is an accessory of indispensable value. This road is an arduous one and is often enshrouded in darkness. It is therefore not to be wondered at that the feeble human intellect should often get tired and abandon it to follow some *ignis fatuus* whether supernatural possession, metaphysical explanations of various kinds or—in our own time—the semipsychological, semimythological theories of Freud embracing the “unconscious” and the sexual urge.

All these are natural reactions of the human mind in its endeavour to escape from problems which seem to defy solution. They are attempts to evade apparently insuperable obstacles by circumventing them.

In Nature as in human affairs we have to distinguish carefully between two categories of causation namely, the *causa causans* and the *causa sine qua non*.

Let us suppose that the delicate cerebral mechanism which subserves the function of con-

sciousness, can be disordered either by possession by evil spirits or by the unspeakable sexual depravity of the Freudian “unconscious,” as we believe it may be by other more credible agencies. We are still not much further advanced in our quest, for these are but examples of the *causa causans*. We have still to discover the all important *causa sine qua non*. That this latter varies in each individual and in each recognized clinical form of nervous and mental disturbance is undoubted.

The medical records of the Great War where the *causa causans* in the forms of fear, fatigue and vicissitude was all prevailing has taught us valuable lessons. We know that some men who accomplished four years of continuous fighting in unparalleled circumstances, emerged from it with no apparent trace of nervous impairment. Others who had not reached or just reached the theatre of war, became complete nervous wrecks. Between these two classes every form and degree of mental and nervous disorder occurred. In some the incidence of the disturbance affected chiefly the cortex causing insanity; in others the subcortical sensorimotor centres were chiefly affected and in others again the sympathetic system and the endocrine glands.

We see then that each susceptible individual is vulnerable in one or other of the three great levels of his nervous system which accounts for the diversity of the symptoms of war neuroses. But such a picture is incomplete without further elucidation. The *causa causans* of the war neuroses as of most of the peace neuroses acts primarily at the psychical level.

Therefore the *causa sine qua non* must be a lowered resistance first of the cerebral cortex and secondarily of one or other of the two lower nervous levels—the sensorimotor and the sympathetic. For manifestly an emotion such as fear is only capable of control at the psychical level and by a cerebral mechanism which is intact. Upon this intactness of the cerebral mechanism depends the protection both of itself and of subsidiary nervous centres.

From the researches of such men as Elliot Smith, Campbell and Shaw Bolton we are led to infer that the resistance of the *cortex cerebri* depends to a large extent upon its anatomical architecture which is, of course, developmental. We also know that the psychical resistance may be artificially lowered by exogenous and endogenous toxins or by gross changes of various kinds.

This lowered resistance of the cerebral cortex is the *causa sine qua non* of which I have spoken. The *causa sine qua non* according to Freud lies in a fault in the normal development of the sexual libido. As this condition is incapable of demonstration, it cannot be seriously considered.

Let me return now to a consideration of the two reasons I mentioned for the neglect of psychiatry and of psychiatric clinics.

The first reason given was the rough popular classification of a community into a sane and an insane portion and the assumption that every person not certified or secluded in a mental hospital is sane and as good as his neighbour. The so-called sane



portion of the community is, however, the too fruitful source from which not only the certified insane but also the more numerous class of psychoneurotics and neurotics are being constantly recruited and it is to this sane portion they are constantly being returned after treatment. Not only so but the sane population contains a much larger proportion of unrecognized forms of the neuroses and psychoses than most people imagine. What proportion of this sane population is potentially subject to mental and nervous breakdown could only be revealed by some catastrophic crisis analogous in its effect to that of the war. We know that the war created no new form of nervous malady; it merely laid bare the latent weakness in men who but for it might have lived and died without manifesting any nervous symptoms.

The psychical resistance of the general population is a very variable quantity embracing every degree of mental defect and instability from the obviously disordered to the normally stable individual. In this connexion the variability in the mental quality of intelligence is significant. Thus the 1,700,000 men who were passed as fit for military service in the American Army during the war, were subjected to intelligence tests. The results, though not infallible, must be regarded as approximately true. They were as follows: 4.5% proved to be of "very superior intelligence," 9% of "superior intelligence," 16.5% of "high average intelligence." The remaining 70% in varying degrees showed the mentality of boys from fourteen down to ten years.

The amount of unrelieved and misunderstood suffering in the community due to nervous and mental affections must be very great and the loss in money and in working capacity through nervous illness would, if it could be estimated, prove much more considerable than is generally supposed. The physical basis of this instability, we have every reason to believe, consists primarily in the faulty development of the nervous system more especially of the supragranular layer of the cerebral cortex.

The second reason I gave lies in a vague lingering belief in the duality of mind and body. Such a belief implies among other things a scepticism as to the claim of so-called mental disorders to a place in clinical medicine. So marked is this attitude that it is common to hear medical men say that they know nothing of psychiatry and in a tone that implies that they are quite content with their ignorance. To such must be denied the merit of the man who suddenly confessed that he had been writing prose all his life and did not know it. When it is considered that the general population is permeated by mental disorders, that many forms of bodily disease are of mental origin and that there are few acute physical diseases which do not exhibit mental correlative symptoms, any assumption of a superiority to a knowledge of psychiatry is a confession of ignorance. The new school of psychotherapists on the other hand inclines to the same extreme. In their engrossment in psychological detail they are in danger of losing touch with the clinical aspects of modern medicine.

I remember vividly the first case of acute mental disorder with which I was called upon to deal. A female patient in a general hospital in which I was resident had been operated on for excision of one of the bones of the foot. The cavity of the wound was stuffed with iodoform and gauze. In a few hours afterwards the patient developed an acute confusional insanity with noisy and restless conduct, so much so that the hospital authorities demanded her immediate removal. Fortunately, prompted by some reason which I cannot now recall, I washed out the cavity of the wound and applied a different dressing with the result that the mental symptoms subsided and the patient remained quiet and rational until the wound had healed.

A case of this kind viewed from the medical standpoint exposes the futility of a working belief in the duality of mind and body. The packing of wounds of this kind with iodoform was common enough forty years ago, but I am not aware of any other untoward event such as I have described resulting from its use. In explanation of it we have to postulate two conducting factors, namely an imperfect defence on the part of the organism against toxic substances and a defect in the material substratum of the psychic mechanism which subserves conscious function. When in the future the nature of immunity, of anaphylaxis, of the functions of the endocrine glands and the sympathetic and of the response of the psychic mechanism to all these is more fully understood, a case such as I have referred to will be but a commonplace type of the so-called functional nervous and mental affections.

The arguments based upon the immunity of the general population from nervous and mental disease and upon the duality of mind and body which have militated against psychiatric clinics, are so inherently trivial as scarcely to require refutation, were it not that they are so widely diffused.

When we come to consider the necessity for these clinics, other and quite different objections may probably arise.

It might, for instance, be argued that short of certifiable cases such patients can be equally well treated by the medical practitioner as by the specialist. The medical practitioner will always have to treat cases of this kind, just as he treats every form and variety of disease and in a proportion of functional nervous cases his results will be as good as those of the specialist. In a certain proportion of cases his results will prove unsatisfactory, because he is unlikely to be acquainted with the innumerable pitfalls surrounding diagnosis which in this branch of medicine is all important.

To deal effectively with patients suffering from functional nervous and mental maladies there are three requirements:

1. Correct diagnosis upon which prognosis depends.
2. Correct interpretation of symptoms which determines treatment.
3. A familiarity on the part of medical men and nurses with the peculiar symptoms and mental

reactions of this class of patient in the absence of which the medical treatment may be seriously hampered.

It is obvious that these essential requirements can best be obtained by aggregating the patients in a psychiatric clinic.

Every psychiatric clinic should have an outdoor and indoor department. It will be found that a varying proportion of the patients can be treated in the outdoor department, but to do this successfully an adequate medical staff is required for the purposes of thorough physical examination, case taking and psychotherapeutic treatment.

Let us glance briefly at the types of disorder of the patients who commonly present themselves for treatment at a psychiatric clinic.

#### Neurasthenia.

The most numerous are those labelled "neurasthenia." We all know this much abused generic term which includes a vast variety of forms differing in origin, in the nature of the symptoms and in prognosis. Among its various forms are:

(a) Those cases in which the symptoms arise from some general disease such as pulmonary tuberculosis, diabetes, cardiac dilatation, pernicious anemia and so forth. These cases teach that the first requirement for treating neurasthenia is a knowledge of general medicine. They also illustrate the advantage of the association of the psychiatric clinic with a general hospital.

(b) The type of neurasthenia which frequently forms or accompanies the earlier phases of serious nervous diseases such as tabes, general paralysis or acute mental affections. For the proper diagnosis of these some knowledge of both neurology and psychiatry is important if not necessary.

(c) The group of cases which are really manifestations of the manic-depressive syndrome. These patients in common with other neurasthenics suffer from mental depression, but a careful inquiry into the previous history will reveal recurrent attacks of depression, in some of them alternating with attacks of mental exaltation.

In addition there are several other groups, for example, (d) those of organic origin; (e) those of toxic origin; (f) those of metabolic or nutritional origin.

#### Hysteria.

Hysteria in the majority of instances is primarily of mental origin, although its symptoms may be obscured by secondary metabolic and nervous disturbances often of a profound character. The manifestations of the disease are numerous and diverse, often sensational and dramatic, but the constantly underlying mental disorder forms a unifying basis for diagnosis and treatment. Excluding organic cases the subject of hysteria driven by fear, more often the fear of consequences, unconsciously seeks refuge in a defence which is a flight into disease. The frequency with which hysteria accompanies serious mental disorders and organic nervous diseases, makes it imperative that every patient

suffering from it should be subjected to an exhaustive physical examination. Even then we may be left in doubt as to the true interpretation of some of the symptoms.

Hysteria by its very nature implies a permanent defect in the mechanism of psychical resistance—a defect which is most frequently congenital, less frequently acquired. In uncomplicated cases of hysteria and particularly in cases in which the symptoms are of short duration, the methods of psychotherapy are the most effective form of treatment. In long standing cases the symptoms often partake of the nature of a fixed delusion and are apt to be resistive to all methods of treatment.

#### Organic Nervous Diseases.

With the exception of more purely neurological cases which include chiefly peripheral nerve and spinal lesions, both of the upper and lower neurones, a great variety of organic nervous diseases are to be seen in a psychiatric clinic. Many of the patients manifest mental disorder of a mild type, such as is met with in *postencephalitis lethargica*, disseminated sclerosis and the various forms of neurosyphilis.

In others mental disorder is not apparent, but the aetiology and symptoms make them suitable subjects for treatment in the clinic.

The artificial demarkation between neurology and psychiatry is no longer tenable and it is of the first importance that the chief of a psychiatric clinic should have a knowledge of neurology. He cannot effectively deal with general paralysis without an acquaintance with tabes and neurosyphilis or with hysteria or *dementia præcox* without a knowledge of disseminated sclerosis. If he is permitted to treat Huntington's chorea, how can Sydenham's chorea and athetosis be excluded. If patients suffering from the various forms of mental defect are to enter the clinic, why not cretins and the subjects of hereditary ataxia. Psychiatry and neurology are inseparable and the mutual help which the one affords to the other, cannot be sacrificed to prejudices which are antiquated and at the present day meaningless.

#### Mental Defectives.

Until the community awakens to a sense of its responsibility towards the unfortunate class of mental defectives, the number of them who will be sent for advice to every clinic that is opened, will be very considerable.

They require not only a classification into their various clinical groups, but also a laborious individual examination to determine their mental capacity. In the majority of the cases it will be found that they are so poorly endowed that this examination might perhaps be dispensed with, but there is always a minority whose mental development is superior to what might have been expected from their appearance, while some of the brighter looking defectives reveal a surprisingly low intelligence quotient.

For these reasons an examination by means of psychological tests is desirable in most cases.

From the point of view of the community the problems presented by this class are of the first importance ranging from criminality in all its forms to sexual misdemeanours and vagrancy.

It will fall to the lot of the medical officers of the clinic to correct the optimistic expectations of relatives and to advise them on the important subjects of care, supervision and employment.

#### Epilepsy.

The variety in the forms and manifestations of epilepsy as well as in its variable response to treatment makes it one of the most interesting of the subjects of study in a clinic. In a certain number of the cases the home environment is not conducive to cure; in a few it proves the best. In others again no treatment has any effect beyond perhaps controlling the number of the fits. In all cases it is desirable that the patients should be passed from the out-patient department to the indoor clinic for continuous observation over a longer or shorter period of time. As regards medicinal treatment the leading authorities maintain that the bromides are still our sheet anchor. I have found "Luminal" a valuable, though not an infallible remedy and in combination with the bromides I have seen much benefit derived where either drug separately proved unsatisfactory.

#### Incipient Mental Disorders.

If in the group of incipient mental disorders we include the large number of functional nervous diseases which are indistinguishable from mental disorders and which often merge into them, this will probably be found to be the largest of all groups.

Although as a rule the great majority of cases of mental disorder appearing in a large clinic, like that of the Royal Prince Alfred Hospital are so mild that they may be treated at home or in ordinary wards, there is a very small number with acute symptoms, obviously though not ostensibly brought for advice as to the necessity for certification or in the hope of averting it. There also appear from time to time a few patients with paranoia of various kinds whose rational behaviour and conversation might lead anyone but an experienced psychiatrist to overlook the gravity of their symptoms.

Such roughly and briefly are the forms of nervous and mental disorders which we may expect to meet with in a psychiatric clinic.

I desire to add a few remarks upon some of the probable results of the establishment of psychiatric clinics throughout a community such as that of New South Wales where a few years ago there was none and where now they are in existence in centres so far apart as Orange, Newcastle, Goulburn and Sydney.

The first beneficial result will probably be a weakening of the prejudice which conceives of mental disorders as limited to the inmates of lunatic asylums. For when it is once recognized that the inmates of mental hospitals differ from the larger number of similar patients in the general popula-

tion only in the severity or chronicity of their symptoms, the stigma at present attaching to insanity must necessarily lose much of its force.

The second result will be what I may take the liberty of terming the democratization of psychiatry. Hitherto an artificial barrier has been in existence. On one side of the barrier were the so-called insane with their physicians and attendants, on the other side the subjects of the unrecognized psychoses, the medical profession, detached and uninterested, and the general public instinctively disliking anything suggestive of mental disorder.

The establishment of the psychiatric clinic will more than anything else help to break down this barrier and bring psychiatry within the everyday scope of the physician and the medical practitioner.

Both psychiatry and neurology will always be specialties requiring years of study and practice to master, but specialism exists in every other branch of medicine in which the practitioner necessarily engages. It is absurd to suppose that, given the necessary facilities for familiarizing himself with it, there should be any impediment to his dealing equally with many forms of nervous and mental disorders.

The third result will be the relief of much human suffering. The first important advance in New South Wales in this respect was the opening, six or seven years ago, of the Broughton Hall Hospital for the reception of civil patients. When I think of the hundreds of patients who pass through it annually, I have often wondered what the lot of similar persons was before its existence. No doubt many of them sought medical advice and treatment, but no medical man whatever his qualifications can hope to treat satisfactorily the majority of them in their homes which seldom afford the rest, quietude and protective influence they require. Indeed in too many instances the home atmosphere is suspect of being *fons et origo mali*.

If we sum up these results we must come to the conclusion that the establishment of psychiatric clinics confers a boon on the public, on the medical profession and on the psychiatrist. Psychiatry has too long been divorced from clinical medicine and its practitioners have been forced to occupy a circumscribed and unenviable position while a wider field of work was urgently awaiting their services.

#### A NOTE ON THE PRESERVATION OF SAMPLES OF BLOOD FOR SUGAR ESTIMATIONS.

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(From the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne.)

SAMPLES of blood for sugar estimations are so frequently sent from the country to town that a reliable method of preventing the glycolysis which normally occurs in shed blood, is of great value.



This has been achieved by Sander<sup>(1)</sup> who found that a mixture of ten parts sodium fluoride and one part thymol in the proportion of fifty milligrammes of the mixture to each cubic centimetre of blood is a satisfactory preservative for the uric acid, creatinin, creatin and glucose present in it. The method has been modified by Nadler, Starr and Tukey<sup>(2)</sup> and applied to Folin and Wu's<sup>(3)</sup> micromethod of glucose estimation. In view of the more general use of Maclean's method<sup>(4)</sup> in Australia, I have used this method to test the preservative action of Sander's mixture and compared its activity with that of formaldehyde, the use of which was suggested by Denis<sup>(5)</sup>. Formaldehyde was found to be unreliable, since it gave readings which were too high after keeping a few days and frequently caused coagulation of the blood.

#### The Collection of the Sample.

In the bottom of a small glass tube 7.5 milligrammes of a mixture of five parts sodium fluoride and one part thymol are placed. The ear or finger is pricked and the blood allowed to run by capillary attraction into a piece of glass tubing of two or three millimetres bore until approximately 0.3 cubic centimetre has been collected and is at once blown out on to the fluoride-thymol mixture and well shaken to prevent coagulation. This gives the required 0.2 cubic centimetre for an analysis by Maclean's method.

#### Results of Comparative Analysis.

Table I. shows the results of immediate analysis of fresh blood without preservative or oxalate and of blood to which the thymol-fluoride mixture was added. A maximum difference of - 0.019 was detected.

Two specimens were collected on to the fluoride-thymol mixture, one kept for seven days and the other for fourteen days in the laboratory at room temperature. A third specimen was taken into a 0.2 cubic centimetre pipette without oxalate or preservative and analysed at once. Table II. shows the results of a series of such experiments.

TABLE I.  
PERCENTAGE OF GLUCOSE IN BLOOD.

Fresh Blood. No oxalate or preservatives added.	Fresh Blood. Five milligrammes sodium fluoride and thymol (5:1) per 0.2 cubic centimetre.
0.088	0.093
0.117	0.114
0.250	0.268
0.122	0.120
0.185	0.176
0.171	0.170
0.311	0.330
0.292	0.294
0.309	0.306
0.216	0.198
0.283	0.278

The maximum difference after seven days was 0.021 and after fourteen days 0.011. This is about the same error as that obtained by Nadler, Starr and Tukey using Folin and Wu's method.

TABLE II.  
PERCENTAGE OF GLUCOSE IN BLOOD.

Fresh Specimen.	Seven days later with Sodium Fluoride and Thymol (5:1).	Fourteen days later with Sodium Fluoride and Thymol (5:1).
0.204	0.211	0.208
0.164	0.156	0.162
0.174	0.168	0.178
0.168	0.189	0.175
0.143	0.159	0.144
0.206	0.209	—
0.241	0.250	0.252
0.168	0.159	0.170
0.320	0.337	0.317
0.157	0.149	—
0.115	0.110	0.115
0.145	0.149	0.148
0.162	0.160	0.160
0.127	0.135	—

In contrast to these results are the observations obtained by the use of formaldehyde of which only a few are shown (Table III.).

TABLE III.  
PERCENTAGE OF GLUCOSE IN BLOOD.

Fresh Specimen.	Blood to which 5 milligrammes potassium oxalate and one drop of formaldehyde was added.
0.088	0.115 (immediately after collection). 0.125 ( 5 days after collection). coagulated ( 7 days after collection).
0.222	0.238 (immediately after collection). 0.240 ( 1 day after collection). coagulated ( 7 days after collection).
0.117	0.115 (immediately after collection). 0.133 ( 3 days after collection). coagulated ( 7 days after collection).
0.122	0.119 (immediately after collection). 0.170 ( 1 day after collection). coagulated ( 7 days after collection).
0.227	0.238 (immediately after collection). 0.260 ( 1 day after collection). coagulated ( 7 days after collection).

#### Acknowledgments.

My thanks are due to Dr. C. H. Kellaway, Director of the Walter and Eliza Hall Institute, for his criticism and help and to Miss Cecil Maudsley, who assisted me with the analyses.

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- <sup>(2)</sup> H. Nadler, Paul Starr and S. Tukey: "Glycæmia as a Guide in the Treatment of Diabetes Mellitus: Practicability of Routine Examination of Small Effectively Preserved Specimens of Blood Drawn by the Patient." *Archives of Internal Medicine*, October 15, 1925, page 579.
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- <sup>(4)</sup> H. Maclean: "On the Estimation of Sugar in Blood." *Biochemical Journal*, Volume XIII., January, 1919, page 135.
- <sup>(5)</sup> W. Denis and Martha Aldrich: "Note on the Preservation of Specimens of Blood Intended for Blood Sugar Determinations." *Journal of Biological Chemistry*, Volume XLIV., October, 1920, page 203.

## NOTES ON A METHOD OF INDUCTION OF LABOUR.

By KEITH H. HALLAM, B.A., M.B., B.S.,  
Croydon, Victoria.

MEDDLESOME interference, that catch-phrase of modern obstetrical writings, has become a byword as the cause of maternal morbidity and mortality, so that any obstetrical method which helps to bring about a minimum of this interference should be thoroughly investigated and probed. With this end in view these notes are published, after a method of induction of labour, much used in Canada and England but evidently only spasmodically here, had been tried on a few cases. These cases were too few, it is true, to be of statistical value, yet they give such encouraging results as to warrant the inducement of others to use the method systematically on a sufficient number of cases to ascertain its true worth and place in up-to-date obstetrics.

This method is particularly useful to practitioners working in districts where roads are bad and where the journey to the hospital on a dark, wet night is a nightmare to the mother. At term or just before she comes in for induction, but has not the tedious expensive wait—sometimes three or four weeks—before her baby comes, having by this time become bored by her attendants and they by her.

Other advantages are: Short labours without complications in picked cases; the obviating in many cases of the use of forceps or pituitrin; rapid recuperation in the puerperium, the mothers not having been tired out by long labours. It appears to be especially beneficial in *multiparæ* who have had previous long labours, although there is no pelvic contraction, the length of labour being evidently due to some inherent weakness of the uterine muscles which need some extra stimulus in all three stages of labour, presumably provided by this method. Also it has been observed that after rapid labour following this induction there is not the same tendency to *post partum* hæmorrhages due to poor contraction of the uterus, such as is often observed after ordinary, very rapid labours.

Against the method it may be urged that such rapid delivery causes great damage to both cervix and perineum. The first is difficult to prove, since in *multiparæ* by no postpuerperal examination could the extent of recent damage to the cervix be estimated. However, in none of the writer's cases was there severe *post partum* hæmorrhage suggestive of extensively torn cervix and in one only of the cases quoted was suture of the perineum necessary, that being a forceps delivery of a *multipara*.

Extremely severe pains were not a prominent feature, all patients having ether anæsthesia for the last few pains in the second stage.

Early rupture of the membrane has been postulated as an objection; this occurred in only one case, that of a *primipara* with persistent occipito-posterior presentation. In this case also and in the forceps case were *per vaginam* examinations neces-

sary and made. In no case was pituitrin used either *ante partum* or *post partum*, although the writer has perforce to use this drug often in labours not induced by this method. In one case only were forceps used and indicated. In no case was puerperal rise of temperature or pulse rate noted. For the latter, of course, due credit must be given to the nursing staff of the private hospital, where all the patients were delivered.

Careful external pelvic measurements at least are indicated to obviate extraordinary uterine stimulation when there is definite disproportion between passage and passenger.

The method of induction is as follows, the timetable being altered to the convenience of all or any of the persons concerned: At 4 p.m. thirty cubic centimetres (one fluid ounce) of castor oil are given. At 5 p.m. 0.6 gramme (ten grains) of quinine sulphate is given. At 6 p.m. a soap and water enema is given. At 7 p.m. 0.6 gramme (ten grains) of quinine sulphate is given.

If labour does not commence next day, the treatment may be repeated the day after. Small doses of pituitrin have been advised, but not tried in these cases.

Slight cinchonism may be exhibited by sensitive patients.

Summarized the main points are: Shorter labours, fewer *per vaginam* examinations, less use of forceps and pituitrin. This method may also be used in conjunction with other methods of induction, such as by bougies, stomach-tube, packing, Champetier de Ribes's bag.

Below are brief summaries of cases with previous obstetrical histories:

CASE I.—Two living children were born after difficult long labours; then one full time still-born child was born after labour lasting more than twenty-four hours, delivery was by forceps. The pelvic measurements were normal. The patient on all previous occasions had had labour pains intermittently, mainly at night time, for six weeks previous to parturition. She refused Cæsarean section or induction with bougies and so the induction process was tried at the thirty-sixth week. Not till the fourth attempt, when the pregnancy was almost full time, was it successful. After the process was gone through in the evening at the fourth attempt, labour commenced at 5.30 a.m. next day and a living baby was delivered by forceps at 7.30 p.m. when the cervix was fully dilated, as it was considered advisable that no undue stress should be allowed to bear on the child's head, and the mother was worn out.

CASE II.—One child was born by instrumental delivery after long labour; the patient lived in a badly accessible locality. The pelvis was normal. Induction process was carried out in the evening. Labour began next day at 12.30 p.m. A living baby, weighing 3.6 kilograms (eight pounds) was born at 3 p.m. No sutures were required.

CASE III.—The first child (the only one) weighed 2.5 kilograms (five and a half pounds) at birth, the mother was delivered by forceps after a "bad time" and a long time. A minor degree of pelvic contraction was present. Antenatal examination at seven and a half months in the second pregnancy revealed the mother to be abnormally large and diagnosis was made of either twins or hydramnios or a mistake in dates. Induction was therefore immediately undertaken and commenced in the evening. Pains began at 11.30 p.m. and twins were born at 5.30 and 6 a.m., each weighing three kilograms (six pounds). No sutures were required.

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CASE IV.—The patient had one child, born after a normal but long labour. The pelvis was normal. Induction process was started in the evening. Labour commenced in the early morning of next day and a 5.5 kilogram (twelve pounds) baby was born at 12.30 p.m. on the same day. No sutures were required.

CASE V.—The patient had one child, born after long confinement of more than twenty-four hours' duration. The pelvis was normal. Induction process was commenced in the evening, pains began at 3 o'clock next morning and the baby was born at 6 a.m. No sutures were required.

CASE VI.—The patient had five children and came from a distance. She had had forceps delivery with the last two children and long confinements with all. The pelvic measurements were normal. Induction process was tried once without result. Six days later it was commenced in the evening and the baby was born at 6 a.m. next day after the mother had had labour pains for two and a half hours.

CASE VII.—The patient had had three children after long labours. The pelvis was normal. Induction process was started in the evening of June 10, 1925. Labour began at 4.30 a.m. on June 12, 1925. The baby was born at 7 a.m.

CASE VIII.—The patient was a *primipara*. The position was antenatally diagnosed as right occipito-posterior. The pelvic measurements were within normal limits; the intercrystal measurement was twenty-eight centimetres, the interspinous was twenty-five centimetres and the external conjugate was eighteen centimetres. Induction process was started in the evening; small pains commenced at 4 p.m. next day, the pains becoming more severe at 3 o'clock next morning. The membranes ruptured at 6.30 a.m. At 10 a.m. the os was dilated "half a crown" and the position was right occipito-posterior. The administration of 0.015 gramme (one-quarter of a grain) of morphine and 0.0003 gramme (one two hundredth of a grain) of hyoscine was followed by sleep. At 3 p.m. the os was dilated "six shillings" and the position was right occipito-posterior. At 6.15 p.m. the os was almost fully dilated and the head had almost rotated. As the second stage seemed to be progressing and the mother and babe were quite all right, the process of normal delivery was allowed to continue and the baby was born naturally at 7.30 p.m., weighing 3.6 kilograms (eight pounds). No sutures were required.

CASE IX.—This patient was a *nullipara*, having had two miscarriages. At four and a half months a slight vaginal hæmorrhage occurred and the patient was put to bed and sedatives were administered. Temperature and pulse showed a slight rise next evening and the induction process was commenced. The fœtus was born the next day.

CASE X.—The patient had three children; all were long labours. The pelvis was normal. Induction process was tried three times without success, the baby being born two days after the last attempt, after a labour of two and a half hours. No sutures were required.

CASE XI.—The patient was a *primipara*. The pelvic measurements were as follows: Interspinous twenty-seven and a half centimetres, intercrystal thirty-one centimetres and external conjugate twenty-one centimetres. Induction process was followed in a few hours at 11 p.m. by labour pains, a baby weighing four kilograms (eight and a half pounds) being born three hours afterwards. No sutures were required.

CASE XII. presents some interesting features. The patient's first baby was born alive and is now twelve years old. The second died a few days after birth from *melena neonatorum*. The third was still-born in spite of rigid antenatal care; it was macerated. Consequently, on her becoming pregnant on this occasion, she was urged to have the induction treatment two weeks before the calculated time. The baby was found to be alive on the morning of the induction which was commenced at 11 a.m. Pains began at 4 p.m. and the baby was born alive by very precipitate labour at 6 p.m.; three sutures were necessary and half a cubic centimetre of pituitrin was given for post partum hæmorrhage. In this case, evidently, the quinine had too great a stimulating action.

## Reports of Cases.

### A CASE OF RENAL DIABETES COMPLICATED BY ACUTE NEPHRITIS.<sup>1</sup>

By C. H. KELLAWAY, M.D., M.S. (Melbourne),  
M.R.C.P. (London),

Director, Walter and Eliza Hall Institute of Research  
in Pathology and Medicine, Melbourne.

C.G., A MALE, aged twenty-four years, was admitted to hospital on April 20, 1926, with a history that three weeks before he had had a left-sided quinsy which burst and was subsequently opened. A week before admission he began to suffer with pain in the abdomen and loins. Three days later his friends noted puffiness of his face and he had some headache, frequency of micturition and shortness of breath.

On examination he had a pale, pasty complexion with obvious œdema of the face and ankles. The urine was loaded with albumin, contained pus cells, red blood corpuscles and granular casts and in addition contained a large percentage of sugar. The heart was not obviously enlarged, though the aortic second sound was accentuated and the systolic blood pressure was 158 and the diastolic blood pressure 104 millimetres of mercury. There were diminished breath sounds with occasional crepitations at both bases. There was also tenderness in both loins. The tonsils were obviously septic and, although a *Staphylococcus albus* was isolated from the urine, an attempt was made to see whether any streptococci, pathogenic for the patient and having a specific tendency to localization in the kidneys, could be isolated by Rosenow's methods. The experiments yielded no positive results and it was thought likely that the staphylococcus was responsible for the renal lesion which was in all probability a pyelonephritis.

The most interesting investigations on this patient concerned the constant finding of a large amount of sugar in the urine, together with a low blood sugar. These investigations were carried out by Miss Splatt with the cooperation of Dr. Cooper. On two occasions the blood sugar in the patient, fasting twelve hours, was found to be 0.10% and 0.11% and the sugar percentages in the urine secreted at corresponding periods were 5.88% and 3.85%. It was clear, therefore, that the patient had a very low threshold for glucose and that his condition must be regarded as a renal glycosuria. An attempt was made to estimate the actual threshold value by the administration of "Insulin" to the fasting patient in order to lower the blood sugar. Two experiments were made in one of which five units of "Insulin" and in the other ten units of "Insulin" were administered. On the first occasion the blood sugar was reduced to below 0.9% and on the second to 0.75%, but sugar continued to be passed in large quantities in the urine. Samples of urine were collected at the corresponding periods to those in which specimens of blood were taken for testing.

Perhaps the most interesting feature of the case was the result obtained by tolerance tests carried out on two occasions, once at the height of the renal disease and once later when the patient was practically recovered, his urine being free from pus and blood cells and containing only 0.01% of albumin. On the first occasion the tolerance curve obtained in response to fifty grammes of glucose was that of a mild diabetic, the blood sugar rising to 0.190% after half an hour and continuing to rise during the next hour to 0.205%. After two hours the blood sugar was 0.16%. The second tolerance test exhibited a very great improvement, only a very small rise occurring, so that an almost flat curve was presented. In this second case the absence of the normal initial rise of the blood sugar following the administration of fifty grammes of glucose was a further point of interest. It appeared then that the septic lesion in the kidneys had definitely affected the actual tolerance of the patient for sugar.

I am indebted to Dr. Hiller for the opportunity of investigating and presenting this patient.

<sup>1</sup> Read at a meeting of the Victorian Branch of the British Medical Association on May 28, 1926.



# A CASE OF CEREBO-SPINAL RHINORRHOEA.

By SIR JAMES BARRETT, K.B.E., C.B.,  
C.M.G., M.D., M.S., F.R.C.S.,  
Melbourne.

A.B., AGED thirty-eight years, was first seen by me on September 24, 1925, and gave the following history. He had suffered from slowly increasing deafness until a year ago since when it had remained stationary. There had been no increase in the deafness during the second year, but he had experienced constant pain in the head and he had an operation on his throat and nose (septal resection) two years before. He had been stumbling in his gait for about six months. He was married and had had four children, the eldest of whom had been drowned. Between the last two children there had been two miscarriages at a few weeks. The children were apparently healthy.

When examined the nose and throat appeared to be fairly normal apart from some enlargement of the left tonsil. The accessory sinuses appeared to be normal. The hearing was as follows:

Right Ear.—Watch measurement  $\frac{1}{12}$ ; mastoid measurement, - 5; measured by Rinne's test + 15.

Left Ear.—Watch measurement  $\frac{1}{12}$ ; mastoid measurement - 5; measured by Rinne's test - 21. The mallei were moveable.



FIGURE I.

Brain, showing the hollow left after removal of the left-sided tumour.

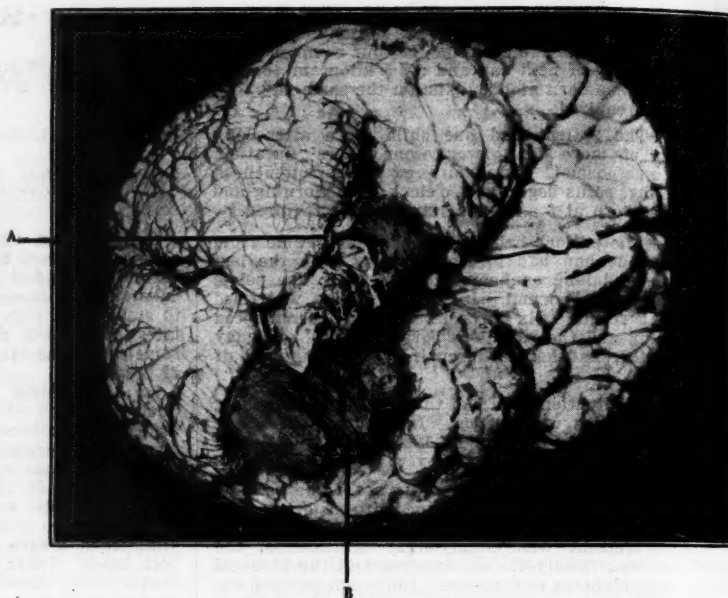


FIGURE II.

Brain, showing the peripheral end A of the left acoustic nerve on the right side of the picture and the central end B of the same nerve in the centre.

His vision and refraction were as follows:

Right Eye.—Vision =  $\frac{6}{9}$ ; under mydriatic  $\frac{Rc + 0.5}{+0.5} = \frac{6}{5}$  150° =  $\frac{6}{5}$  (partly).

Left Eye.—Vision =  $\frac{6}{9}$ ; under

mydriatic  $Fc - 0.5$  140° =  $\frac{6}{6}$  (partly).

The optic discs, however, were slightly blurred and the vessels were wavy. This was more evident on the left than on the right side. The elevation of the left disc was about two diopters and of the right about one diopter. There was no diplopia to be elicited and he had binocular vision. There was no reaction to the Wassermann test. He complained that whenever he stooped clear fluid ran from the right nostril. This fluid on examination proved to be cerebrospinal fluid, as the attached report will show. It was frequently possible to collect about two tablespoonsful of it by getting him to stoop.

He went away to the country under treatment and returned in three weeks' time. The elevation of the right optic disc was then five diopters and of the left optic disc two diopters and on the left side there was an exudate and slight hæmorrhage.

## Otological Reports.

The following report was kindly furnished by Dr. Robertson, of Brisbane:

I saw A.B. first on August 18, 1920. He was deaf. In the right ear there was acute *otitis media*; in the left an old perforation—dry. He has had perforation on the right side. He hears a watch with the right ear at  $\frac{1}{100}$  and with the left at  $\frac{10}{100}$ .



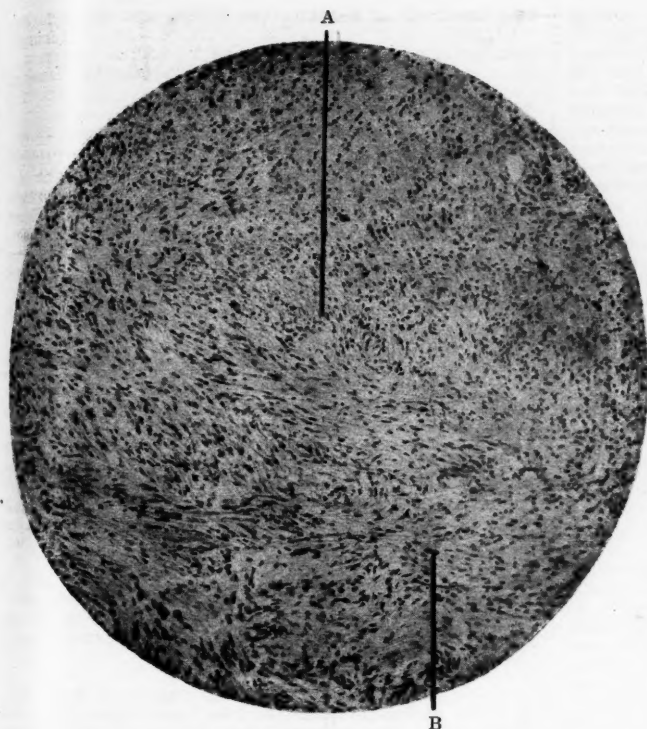


FIGURE IV.

Photomicrograph showing glial and fibrous tissue side by side.  
A—Glial tissue with fibrils. B—Fibrous tissue structure.

On September 13, 1923, the inflammation of the right ear had subsided and the hearing was  $\frac{20}{100}$ . He had considerable nasal obstruction, the septum being much distorted. He had also large posterior ends of the turbinates. He was sent to a public hospital for operation which was performed on October 23, 1923. He called again on April 9, 1925, and said that water ran out of the right nostril on stooping. There were no other symptoms. His right antrum was washed out, but nothing was found. Dr. Robertson left for England and did not see him again.

Dr. Crosse, of Brisbane, furnished the following additional note:

Mr. A.B. consulted me in July, 1925, and complained of the following symptoms: headaches, deafness, continuous head noises, giddiness, nervousness and stuffiness in the head. The headaches he described as a tightness in the forehead and behind the left ear, with constant pains in the back of the head, the headaches always being worse at night and particularly when he was worried.

When the patient walked into my rooms his appearance was that of a man who was under the influence of liquor, having a dazed appearance and staggering gait. When he sat down, he talked incessantly and it was difficult to get a word in edgeways, although he was quite intelligent. I had to shout at him as he was so deaf.

He also complained that he lost his balance and that he had a sensation of falling to the right, but never to the left and that his head spun from right to left. When asked to walk across the room, he had a tendency to fall to the right. Rhombert's sign was absent.

Nystagmus was to the left and was not regular. On examination of the left ear with Bárány's noise apparatus in the right, he perceived some sound only and could not distinguish words at all even when I shouted in his ear.

In regard to the right ear Rinné's sign was not elicited; moderately loud sounds were heard at about twenty centimetres (eight inches). Caloric tests of both ears produced no reactions whatsoever. With the head inclined  $30^\circ$  forward the results of turning tests were as follows: Turning from left to right there was nystagmus to the left, but slight. Turning from right to left nystagmus was to the right and his giddiness increased and he lost his balance.

He complained of a nasal discharge which he described as having a salty taste and the appearance of water. On examination I found his septum had been resected. The nose otherwise was normal.

Pointing tests were unsatisfactory; if anything he pointed above and one could not say exactly to which side.

Unfortunately, no eye specialist or physician saw him, although arrangements had been made, as he did not present himself for examination.

The fluid from the nose was examined by Dr. Bull, of the Melbourne University, who supplied the following report.

#### Pathological Report.

I have examined the two samples of cerebro-spinal fluid from your interesting patient with optic neuritis. I have also discussed the matter with Associate Professor Young who made certain chemical tests. The results are as follows:

The fluid was clear and watery. From the second sample I removed one or two floating masses of mucus evidently from nose and nasal sinuses. The fluid contained considerable numbers of microorganisms mainly staphylococci, probably from nasal sinuses. Cells were very scanty and mainly lymphocytes.

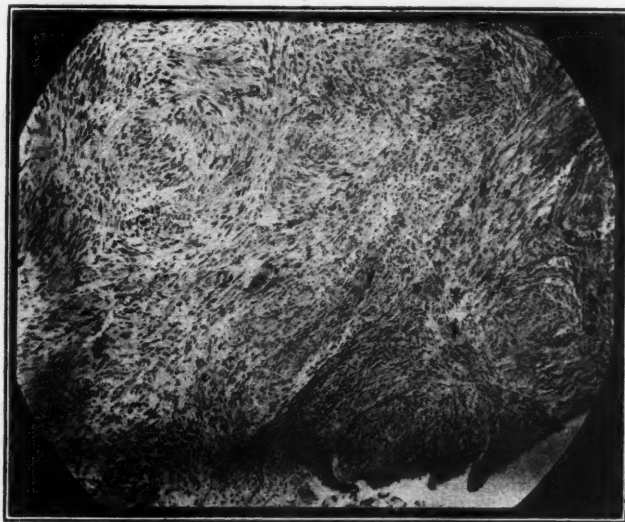


FIGURE III.

Photomicrograph showing fibrous tissue in whorls and palsades.

Protein: Absent.

Sugar: Both samples contained definite traces of reducing substance. These findings point strongly to probability of the fluid being of cerebro-spinal origin.

On September 25, 1925, he was decidedly worse and was seen by Sir Henry Maudsley who reported that there was great overaction and tremor of the facial muscles especially on the right side. His gait was reeling and his speech hurried and clipped. The knee jerks were much exaggerated. There were no Babinski's signs. He complained of giddiness and gave a history of going round like a diseased hen. It was evident there was a gross intracranial lesion.

A very thorough caloric test was made in each ear both with hot water and with cold water. With neither could vertigo or nystagmus be produced. It was quite evident that we had to deal with a classic case of cerebro-spinal rhinorrhœa and that there was abundant evidence of greatly increased intracranial pressure.

After discussion with Sir Henry Maudsley and Dr. Buchanan, it was decided to trephine in the temporal region with the sole object of relieving pressure. If it succeeded, a more extensive operation was contemplated later when the position or nature of the growth could be diagnosed with certitude. A temporal decompression was performed on the right side on October 19, 1925, and the *dura mater* was divided. There was evidence of intense pressure. The patient reacted badly, his temperature rose and he died on October 21, 1925.

#### Autopsy.

A *post mortem* examination was made by Dr. Trinca whose report follows:

On lifting the cerebral hemispheres bilateral tumours were encountered, stretching from the internal auditory meati of the temporal bones to

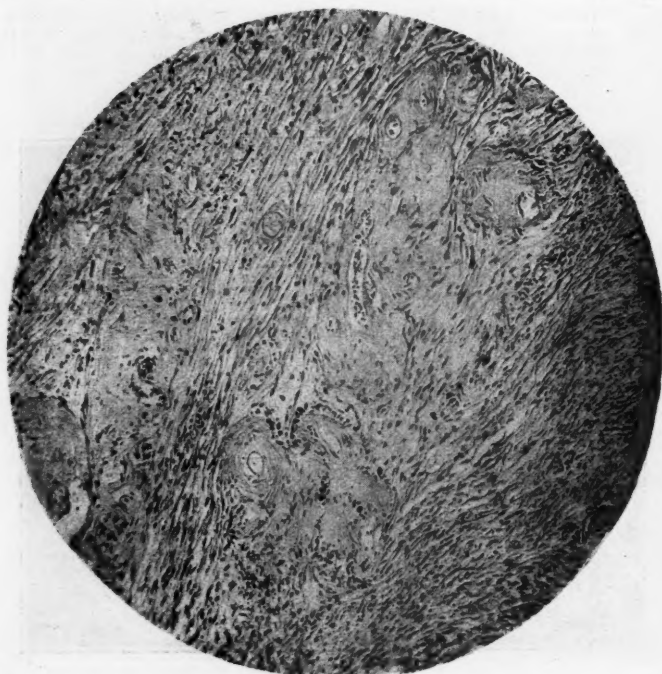


FIGURE VI.

Photomicrograph showing hyaline change around blood vessels.



FIGURE V.

Photomicrograph showing angiomatous blood spaces.

A—Hyaline change around blood vessels.  
B—Fibrous tissue cut across.

the cerebello-pontine angles of the brain, firmly incorporated with the auditory canals and on the left side producing definite enlargement of the porus. They were with difficulty dissected from their peripheral connexions in the auditory canals. The larger, left-sided tumour measured six centimetres in its longest diameter, four centimetres in breadth and five centimetres from above downwards. It was irregularly pear-shaped, irregularly lobulated, but smooth on the surface and was situated below and in front of the left cerebellar hemisphere producing a deep excavation in the latter 2.5 centimetres in depth (see Figure I.). The *pons varolii* was likewise hollowed out and atrophic from pressure on its left side and was displaced to the right and rotated to the left. The whole brain stem seemed to have been twisted and the *medulla oblongata* lay displaced to the left and lying on the surface of the tumour. Spread over the surface are branches of the basilar artery which denote the relation of the tumour to the meninges, that is the subarachnoid. The peripheral end of the tumour appears to be wrapped around the remains of the auditory nerve. The central connexions of this tumour cannot be demonstrated, but as dislocation from its cerebellar bed was comparatively easy, it is possible that natural separation occurred before death.

The smaller tumour measured 2.75 centimetres by 1.5 centimetres by 1 centimetre and lay on the surface of the right half of the *pons*. It was irregularly trilobar in shape and its connexion with the auditory nerve was clearly discernible, the central

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end of which was still firmly attached to the brain (see Figure II.).

A coronal section of the cerebral hemispheres revealed internal hydrocephalus.

#### Microscopical Findings.

Both tumours were structurally identical, their main features are given below.

1. Areas of tissue resembling fibrous tissue composed of elongated cells with oval nuclei arranged in whorls and parallel rows (see Figure III.). The cells are in many areas closely packed together resembling spindle-celled sarcoma, but the nature of the blood vessels is not that found in sarcoma.

2. Contrasting with and often sharply demarcated from the above are areas of looser reticular tissue somewhat resembling glioma tissue, under the high power occasional glial-like fibrils are seen in areas (see Figure IV.). The nuclei of this tissue are less numerous and tend to be rounded. Many areas have a tendency to hyaline change especially round the blood vessels.

The vascularity of the tumours differs in different parts. Towards the centre of the larger tumour the vessels are represented by large blood spaces engorged with blood, with ill-defined walls justifying the term angiomatous. In the more densely nucleated regions of fibrous tissue the vascularity is poor, but the vessels have well defined walls (see Figure V.).

In the hyaline areas many vessels are undergoing hyaline transformation (see Figure VI.).

The situation and structure of the tumours show that this is a case of Cushing's bilateral tumours of the acoustic nerve.

#### Summary.

The case is of profound interest from every point of view. The patient had cerebro-spinal rhinorrhœa which is usually associated with optic neuritis and raised intracranial tension. The fluid is supposed to escape through the ethmoid plate. Whether the previous septal resection had anything to do with it cannot be determined; it seems to be unlikely.

The type of deafness was not that usually associated with cochlear or nervous disease. It resembled ordinary middle ear deafness. Yet the inference is that it must have been produced by the involvement of the auditory nerves.

Although he was not totally deaf and although both auditory nerves were profoundly involved, neither vertigo nor nystagmus could be produced by any calor test. This condition led to the provisional diagnosis of an intracranial lesion after the division of the auditory and vestibular fibres in the brain, whereas the involvement of the auditory nerve proved to be largely extracranial.

On post mortem examination it seemed almost incredible that he could have lived as long as he did with bilateral tumours of so great a size. Their removal by operation would have been practically impossible.

#### THE INTRATRACHEAL INJECTION OF "LIPIODOL."

By HAROLD R. DEW, M.B. (Melbourne),  
F.R.C.S. (England),

Surgeon Attending Out-Patients, The Melbourne  
Hospital, Melbourne.

THE patient, a male, aged thirty-nine years, suffered from an hepatobronchial communicating hydatid cyst which ruptured into the right pleural cavity and caused an empyema. He had previously been treated as though suffering from pulmonary fibrosis for a period of two years. A Casoni test was carried out and a positive result obtained. A few days later he expectorated a cyst and this was followed by the expectoration of many bile stained cysts. The empyema developed suddenly. At operation

hydatid cysts in bile stained pus were discovered in the pleural cavity and drainage was established. At the same time the large hepatic cyst was also drained. The patient did very well, but after fifteen months complained of cough and asthmatic attacks with some slight pain. The persistence of the cough gave rise to the suspicion of the persistence of a subdiaphragmatic pouch. Twenty cubic centimetres of "Lipiodol" were injected through the cocainized larynx and a skiagram was taken immediately afterwards. On this film could be seen a complete picture of the lower part of the bronchial tree on the right side. No track through the diaphragm was revealed and the diaphragm was quite mobile. It was neither raised nor distorted. A general dilatation of all the lower bronchi on the right side was seen and this was probably the cause of the patient's persistent symptoms.

This method is being used to detect the situation of ruptured hydatid cysts in connexion with which X ray examination by the ordinary methods is at fault or useless. It is hoped that it will prove a useful addition to diagnostic methods in these admittedly difficult problems.

## Reviews.

### A HANDBOOK ON MATERIA MEDICA.

THE necessity for a ninth edition (revised) of Potter's "Compend of Materia Medica" by Dr. A. D. Bush, Professor of Pharmacology at Emory University, Georgia, United States of America, indicates the popularity of this type of book with students preparing for examinations.<sup>1</sup> The author does not claim that this publication is a textbook but simply a "compact compendium" and as such it should be an invaluable help to the student in his final revision before examination.

The various *materia medica* are grouped under a concise and practical classification with just the few necessary facts pertaining to the therapeutic use and dosage of each.

The concluding paragraphs on prescription writing and incompatibility are excellent and supply a fund of useful information for the senior student.

Several matters, however, call for special criticism. Thus the intravenous method is described as "dangerous and only to be used as a route of medication in emergency." This seems hardly consistent with the widespread use of intravenous injections for antisyphilitic and other treatment.

With regard to hypodermic injections no mention is made of the necessity of sterilizing the solutions; this is surely too important a matter to be left to the presumption of the student.

Again no mention is made of the use of bismuth in the treatment of syphilis, while arsenic is only credited with "symptomatic success" in the same sphere. These two elements form the basis of the present day armamentarium for the treatment of syphilis, both congenital and acquired.

Referring to "Insulin" little information is given as to dosage or the indications of overdosage and the means of combating the accompanying hypoglycæmia.

Lastly the dosage of antitetanic serum recommended for the treatment of tetanus, namely 10,000 units, is quite inadequate.

### A PATHOLOGICAL MANUAL.

C. Y. WANG, Professor of Pathology in the University of Hong Kong, is the author of a 1925 publication entitled "Handbook of Pathology."<sup>2</sup> As the author states in the

<sup>1</sup>"Potter's Compend of Materia Medica, Therapeutics and Prescription Writing," by A. D. Bush, B.S., M.D.; Ninth Edition, Revised; 1926. Philadelphia: P. Blakiston's Son and Company. Crown 8vo., pp. 273. Price: \$2.00 net.

<sup>2</sup>"Handbook of Pathology," by C. Y. Wang, M.D. (Edinburgh), B.Sc. (Victoria), F.R.C.P. (Edinburgh); 1925. London: John Bale, Sons and Danielsson, Limited. Demy 8vo., pp. 513, with illustrations. Price: 21s. net.

<sup>1</sup>The patient described herein was shown at a meeting of the Victorian Branch of the British Medical Association on May 28, 1926.



preface, the book contains only the more important and salient features in pathology.

The subject matter is not divided into general and special pathology, but comprises chapters dealing with morbid changes mainly from the standpoint of their aetiology. The chapter on degenerations is quite full and lucid, though the author does not give one the impression that he regards any of these, such as gout, as due to errors of metabolism.

In the section on pigmentation no mention is made of the fact that bilirubin can be formed in places remote from the liver, as in hæmorrhagic pleural fluids *et cetera* and Van den Bergh's reaction for the presence of bilirubin in the blood serum in connexion with jaundice is not mentioned.

There is a brief account of the pathology of the irregularities of the heart beat and in the account of arterial disease only the obvious aetiological factors are recounted, while Mönckeberg's sclerosis and *thrombo-angiitis obliterans* are not considered. About one-fifth of the volume is devoted to the consideration of tumours and the description and comparison of similar tumours arising in different situations will be attractive to the student.

The book suffers from the disadvantage of brevity and cannot replace or take its place amongst the well known but considerably larger textbooks on the subject.

There are 282 photographs and microphotographs and 513 pages.

#### MEDICAL AND POSTOPERATIVE TREATMENT. IN MOUTH, THROAT, NOSE, EAR AND EYE CONDITIONS.

DR. THOMAS H. ODENEAL is to be congratulated upon his book on the non-surgical treatment of diseases of the mouth, throat, nose, ear and eye.<sup>1</sup> Designed "for the young specialist and the general practitioner in particular," it fulfils its purpose completely. The feature which most highly commends it is the breadth of its outlook; here is no "narrow specialist" peering through his ophthalmoscope or speculum with one eye and shutting the other to more widely spread phenomena. While detailed enough for the old as well as the young specialist, it is yet so correlated with general medicine and surgery as to be of universal interest to the profession.

It deals with few exceptions, with medical and post-operative treatment only, this limitation making it of a moderate and easily digestible size. Space does not permit of a detailed consideration of its various sections, but it is essentially practical and up to date from start to finish.

It is, perhaps, petty to criticize minor defects in such an excellent work; but there are scattered misprints. Such a phrase as "terrible self-conscious" must surely be put down to the printer's account, while American methods of spelling are obtrusive to a British eye. "Keep the patient protected from drafts" is an amusing instance. Does this mean bank drafts?

#### HÆMORRHAGE FROM THE UTERUS.

It is unusual to have one symptom of obstetrics and gynaecology dealt with under the same cover. As hæmorrhage, however, is such a frequent and such an important symptom of both branches, it is probably an advantage to consider it in this manner. Cameron and Hewitt in their book called "Uterine Hæmorrhage" follow this plan.<sup>2</sup>

The material is excellently compiled and forms interesting and instructive reading. A wealth of experience both

in diagnosis and treatment should be of great benefit to the general practitioner or those interested in these subjects. In dealing with accidental hæmorrhage the treatment is, however, not definite enough. In many of these desperate cases the uterine muscle is damaged beyond repair with complete disorganization of the muscle fibres. Consequently, response to any stimuli is quite absent. As external examination cannot give this information, their treatment by morphine and pituitary extract should not be undertaken, if the more satisfactory one of Cæsarean section and hysterectomy followed by blood transfusion can be performed. By this method more mothers' lives will be saved.

The authors' methods of dealing with the more common complication *placenta prævia* in its different stages are definite and in every way excellent. The book is worth reading for this alone.

Part II. deals with gynaecological hæmorrhage. Here again a wide clinical experience and practical knowledge is shown with concise methods of treatment.

An appendix on hæmorrhage, shock and blood transfusion completes the book.

Though dealing with only one symptom, this book can be read with advantage and profit by any practitioner of medicine.

#### SCHOOL MEDICINE.

IN "An Introduction to School Medicine," by Dr. H. Leslie Cronk, a new and useful departure has been made from the usual type of text-book.<sup>1</sup> It fills the want which faces every practitioner who takes up the work of medical officer for schools, that of information about the minor departures from health or as they might otherwise be called "the beginnings of disease" for which James Mackenzie searched in St. Andrew's.

The name "an introduction" is no doubt suitable, since to the tyro it offers a wealth of information of the greatest value, but it is to the experienced examiner that its value will be chiefly apparent for only a man possessed of much practical knowledge could have written it. Only those with some measure of such knowledge can understand its accurate and broad method of dealing with the many problems which daily present themselves to "school doctors."

Throughout the book there appear references to a somewhat neglected probable cause of deficiencies in growth, both mental and physical, of carious teeth, of the development of adenoids, of the want of resistance to infections of various kinds and of the occurrence of obesity. In all these it is suggested that some excess or more often some want of endocrine secretion is the unrecognized cause.

It would be unwise to lay too much stress upon this cause, but there is no doubt that a number of patients present themselves whose conditions cannot be satisfactorily explained in any other way, and it is of interest to note that Saleeby and other authorities on national health are urging the use of iodized salt at every meal to combat the evils of subthyroidism which they believe to be prevalent in a mild degree.

The chapter on tuberculosis sounds a warning which should not be disregarded. It is true that in Australia generally tuberculosis in children of bones, glands or lungs is not so prevalent as in more populous and sunless countries. It seems, however, to be increasing, although reliable data are not available. The whole aim of the author indeed is to point out how the school medical service can only really be of national benefit if it carries out its function as a preventer of disease in later life.

To do this a medical officer for schools must educate teachers and parents as well as children.

The book can be heartily commended to all interested in medical work among children whether in schools or elsewhere.

<sup>1</sup> "Non-Surgical Treatment of Diseases of the Mouth, Throat, Nose, Ear and Eye," by Thomas H. Odeneal, M.D.; 1926. Philadelphia: P. Blakiston's Son and Company. Demy 8vo., pp. 433. Price: \$4.00 net.

<sup>2</sup> "Uterine Hæmorrhage," by Samuel J. Cameron, M.B. (Glasgow), F.R.F.P. & S.G., and John Hewitt, M.B. (Glasgow); 1926. London: Edward Arnold and Company. Crown 8vo., pp. 208. Price: 8s. 6d. net.

<sup>1</sup> "An Introduction to School Medicine," by H. Leslie Cronk, M.A., M.D., D.P.H. (Cantab.); 1926. London: H. K. Lewis & Company Limited. Crown 8vo., pp. x. + 236. Price: 7s. 6d. net.



## The Medical Journal of Australia

SATURDAY, AUGUST 7, 1926.

### Hospital Practice.

THE present usage in regard to hospital practice in Australia may be summed up in a few words. At the public hospitals those whose circumstances are such that they cannot afford to pay for medical and nursing attention, are provided for and medical practitioners in accordance with the oldest traditions of the profession give their services to these patients gladly and without monetary remuneration. The wealthy find no difficulty in securing all that is necessary. The intermediate patient, the person whose income, while sufficient for the ordinary needs of everyday life, will not stand the strain associated with a prolonged illness, is differently situated. The provision for him is quite inadequate.

It is becoming more obvious that the general aspect of hospital practice is changing and must continue to change. The reasons for this are partly economical and partly associated with the highly specialized nature of much of the investigational work carried out at present and with the elaborate nature of the necessary equipment.

The question may be looked at from the points of view of the administrator and of the medical practitioner. The difficulties of hospital administration in the present circumstances are enormous. The average annual cost of maintenance of each bed is becoming greater and people seeking hospital treatment are being drawn from an ever growing section of the community. The results of financing hospitals by voluntary giving and proportionate or other government subsidy have in many places proved quite inadequate. The remedies suggested have been many. Victoria has made the most promising attempt to deal with the problem by the establishment of an organization administered by a Charities Board. It will be remembered that the discussions in the Victorian Parliament incidental to the passing of the necessary Act were reported in this journal. The Charities Board of Victoria

deals *inter alia* with the establishment of new hospitals and with the allocation of a large government subsidy. The system is based on the linking up of hospitals in outlying centres and in coordinating the work of the less well equipped institutions with those well supplied with modern aids and appliances. Under this system hospitals are grouped and graded and patients may be transferred either for examination or special treatment or for admission from a lower grade hospital to the district hospital.

A report has recently been made to the Government of New South Wales by Dr. Malcolm MacEachern, of the American College of Surgeons, on the hospitals of the State. Dr. MacEachern recommends consideration of the Victorian system in the formulation of a new policy. He advises the appointment of a State hospital board and of a director-general of hospitals, the licensing and standardization of all hospitals and their constitution, so that provision shall be made for all sections of the community, namely those unable to pay anything, those able to pay for maintenance and those able to pay for maintenance and medical attention. He suggests that the hospitals should be financed by fees from patients, by earnings from hospital departments, by donations, collections and similar means and by grants on a *per diem* per patient basis from municipalities and the State. These are some of the main points in the report. In this connexion attention should be drawn to a report published in *The British Medical Journal* of June 20, 1908, on the hospital system in vogue in Germany. Under this system beds are divided into three groups and payment is made for every individual occupying them. The person unable to contribute anything is put into the third class bed and payment is made for him by the Poor Law funds. The insured person is likewise put into the third class bed; if he so desires he may pay extra and go into a second or first class bed. There is nothing to prevent a wealthy person occupying a third class bed, if he so desires.

From the medical practitioner's point of view some changes have been made and the advisability of making others calls for serious consideration. The

old subject of hospital abuse needs but to be mentioned. Probably at no time has the practice been more rampant. Moreover, the amount of time required for much of the clinical and laboratory investigation of the present day and the fact that the State is becoming more involved in hospital practice and in making provision of various kinds for the treatment of sick persons have led to the serious raising of the question of the advisability of abolishing the honorary system altogether. It is significant that in many institutions pathologists, bacteriologists and biochemists are being paid for their services.

In New South Wales the passing of the *Workers' Compensation Act* in its new form has been instrumental in causing the honorary staffs of several of the large metropolitan hospitals to approach the Council of the Branch and to seek its guidance in determining the attitude to be adopted to the new measure. It has been pointed out that in accordance with resolutions passed at Annual Representative Meetings of the British Medical Association an honorary medical officer is entitled to payment, if he is attending a person who is receiving compensation for injuries causing his disability. The same custom prevails in Australia in regard to friendly society lodge practice.

From the foregoing considerations it is evident that there is urgent need in Australia for the elaboration of a policy and for the laying down of broad principles in keeping with the changing aspect of medical practice in hospitals. The subject has been under consideration by the Federal Committee of the British Medical Association in Australia at more than one of its meetings. The meetings are held but twice a year and a certain amount of time must elapse before definite steps can be taken. At the same time it is disheartening to read that "no reply had been received from the Branches." There is urgency in regard to this matter and it is to be hoped that the Federal Committee at its meeting this month will formulate a policy and that if the Branches are consulted again, they will consider the question with a little more promptness than is their custom. Lethargy and want of decision are much too common in medico-political matters in Australia.

## Current Comment.

### RENAL TUBERCULOSIS.

THE pathology of tuberculosis of the kidney has received much attention during the past quarter of a century, but even now certain aspects are in dispute. By tuberculosis of the kidney is meant chronic caseous tuberculosis. Miliary tuberculosis affects all organs and the renal involvement has little influence on the whole process. Dr. C. Gordon Shaw deals with this subject in an article which appears in this week's issue. Like all good teachers he states his views in a very clear and definite manner and reduces his teaching to the simplest form, in order that it may carry its full weight. He has found that chronic renal tuberculosis is always the result of a transported infection from some distant focus. There are records in the literature of renal infections in apparently healthy persons. Some observers claim that the renal lesions are induced in these individuals by the mobilization of bacilli from a latent focus in some other organ. But in some instances no such focus has been found. The renal lesion appears first at the junction of the medulla and cortex and spreads throughout the organ. Dr. Gordon Shaw refers to the passage of tubercle bacilli through the kidney without producing a tuberculous lesion. There has been much argument concerning the mechanism of this strange occurrence. Dr. Shaw holds that the bacilli travel by way of the blood vessels. Hübner and others have endeavoured to produce evidence of a spread of the kidney by way of the lymphatic channels. That this route is followed at times cannot be denied, for the bacilli have been found in the lymphatics of the ureter and renal pelvis in early infections. According to many observers the presence of tubercle bacilli in the urine does not occur without some degenerative or inflammatory change. Professor Robert Zimmermann has recently discussed this matter in connexion with the diagnosis of renal tuberculosis.<sup>1</sup> He has seen two patients within the past five years in whom non-tuberculous lesions were found in the kidney, apparently as a result of tubercle bacilli passing through the renal filter. In one patient very few bacilli were discovered in the urine. She was pregnant and the signs and symptoms suggested a renal tuberculosis. There was a mild, active lesion in the apex of the right lung. The kidney was exposed, but appeared to be normal. A portion was excised for microscopical examination, but only a few degenerative foci in the convoluted tubules were discovered. There was no trace of a tuberculous lesion. The kidney was not removed; the patient was delivered of a healthy child at term and four years later she was in good health. The second patient was a girl aged nineteen years. Tubercle bacilli were discovered in the urine. The bacilli were traced to the urine of the right kidney by ureteral catheterization. The signs and symptoms were severe and characteristic of renal tuber-

<sup>1</sup> *Zeitschrift für Urologie, Band XX., Heft 1, 1926.*

culosis. Nephrectomy was performed, but histological examination revealed that the lesions were non-tuberculous. They were degenerative and necrotic. Professor Zimmerman is satisfied that the lesions were produced by the bacilli passing through the kidney. It has been suggested that in these circumstances the tubercle bacilli are of low virulence. There does not appear to be any direct evidence in support of this hypothesis. Another hypothesis is that the tuberculins in the body are transformed into tuberculopyrin by the specific antibodies and that tuberculopyrin produces tuberculous lesions if allowed to act on the tissue for a considerable time. Wildbolz has apparently not succeeded in submitting any facts to substantiate this hypothesis.

Professor Zimmerman discusses at considerable length the differential diagnosis of chronic tuberculous infection of the kidney. His experience shows that if the diagnosis be made before the destructive process has proceeded far, the prognosis is greatly improved by the removal of the infected organ. He attaches great importance to the examination of the urine for tubercle bacilli and other abnormal ingredients, to cystoscopic examinations and to the testing of the renal function by dye excretion, the urea, the water and the concentration tests, by cryoscopy and by pyelography. He warns against one pitfall. A tuberculous kidney is usually not enlarged and may be contracted. On the other hand the sound kidney may be hypertrophied in order to carry on the extra work. The palpable organ is therefore not necessarily the diseased one. It is probably impossible at present to distinguish between a kidney affected with tuberculosis and a kidney irritated by the passage of tubercle bacilli. It therefore becomes necessary to regard the kidney as tuberculous if the urine excreted by it contains tubercle bacilli.

#### ANTAGONISTS AND SYNERGISTS.

EVERY student of medicine is taught that certain chemical agents used in the treatment of disease are possessed of a pharmacological action antagonistic to that of other agents. At times this antagonistic action is partial. Atropine is employed to prevent certain unpleasant effects of morphine; atropine does not neutralize the narcotic action of morphine. It is usual to speak of physiological antagonists as contrasted with a chemical antagonism which is dependent on a change in chemical constitution when two agents are combined. Conversely it is known that certain substances increase the pharmacological action of other drugs. Bûrghi claimed that when two substances having the same or similar physiological action, were given in combination, the therapeutic action of the combination was greater than that of either substance given alone. This is known as Bûrghi's law. Modern studies in pharmacology have revealed that both antagonism and synergism are commoner and more complicated than was formerly believed. Professor H. Fühner has done

a great deal of work on this subject for many years and has thrown some light on it. In 1907 his attention was directed to the similarity between poisoning with guanidine and tetany. The facts that calcium is useful in controlling the symptoms of tetany in children and that calcium exercises an antagonistic action to guanidine supported the view that tetany is due to the effect of methylguanidine. In dealing with the pharmacology of antagonists and synergists he now is able to produce evidence that calcium chloride is capable of inhibiting both the twitchings and the contractures caused by guanidine.<sup>1</sup> Barium chloride on the other hand acts as a synergist. If a weak solution of barium chloride be given together with a solution of guanidine, the effect is as great as a strong solution of the latter, although neither solution by itself caused any twitchings. Further experiments showed that while strontium chloride acts as an antagonist like calcium chloride in so far as the twitchings are concerned, it acts as a synergist as far as the increase of muscular tonus is concerned. Recent investigations have demonstrated that guanidine action is inhibited by hydrogen ions and enhanced by hydroxyl ions. Sodium and potassium ions also enhance the action.

In the next place Professor Fühner deals with the antagonists and synergists of the hormones. It appears that the action of thyroxin is antagonized by calcium ions and increased by potassium ions. Calcium enhances the action of adrenalin on blood pressure, while potassium inhibits it. Calcium antagonizes the blood sugar reducing action of the hormone of the islet cells of the pancreas, but at the same time it acts as a synergist of the normal element that increases the blood sugar content. Professor Fühner is of opinion that many of the hormones that have a biphasic action, find in the normal constituents of the body antagonists and synergists, ready to check or to augment a physiological requirement.

The same investigator has sought for examples of antagonists and synergists in pharmaceutical preparations. He has discovered two undoubted examples, but realizes that there may be many more. A proprietary preparation called "Narkophin" consists of morphine and narcotin, together with meconic acid. The amount of narcotin is not enough to produce a recognizable therapeutic action by itself. But this alkaloid inhibits the paralyzing effect of morphine on the respiratory centre and reduces the emetic action of morphine. At the same time it increases the analgetic action of morphine on the central nervous system. The other example is "Veramon," a combination of "Veronal" and "Pyramidon." Both ingredients possess a narcotic action, yet the combination has none, the antagonism of the components being complete. Bûrghi's law does not hold good. Closer study of this kind of biological or physiological antagonism and synergism is needed. Facts like those demonstrated by Professor Fühner must be taught to students in order that the decadent art of prescribing may be revived.

<sup>1</sup> *Deutsche Medizinische Wochenschrift*, March 19, 1926.



## Abstracts from Current Medical Literature.

### MEDICINE.

#### Streptococcus Scarlatinae Infections.

F. A. STEVENS AND A. R. DOCHEZ (*Journal of the American Medical Association*, April 10, 1926) point out that for years the occurrence of scarlet fever, accompanied by severe throat lesions, nephritis *et cetera* but without a rash has been observed or suspected. The *Streptococcus scarlatinae* is a widespread organism. Virulent strains have been found in cases of osteomyelitis, of chronically inflamed tonsils and of endocarditis. The strains have been shown to possess all the agglutinative and toxin-producing properties of *Streptococcus scarlatinae*. It is undoubted that scarlatinal infection of the throat may occur without a rash and in persons not reacting to skin tests by scarlatinal toxin. The Dick test, therefore, is by no means trustworthy as indicating immunity to such infections. In diphtheria, on the other hand, in which the organism is essentially a toxin-producer with little tendency to the production of pyogenic complications, the Schick test is apparently an accurate index of the susceptibility of the individual to infection.

#### Gastric and Duodenal Ulcer.

D. C. BALFOUR (*Canadian Medical Association Journal*, May, 1926) considers that the indications for medical treatment of gastric and duodenal ulcer depend upon the anatomical situation of the ulcer. In cases of chronic gastric ulcer prolonged medical treatment is justified only if the patient be of advanced age or his general condition be bad. The objections to medical treatment of chronic duodenal ulcers are not so emphatic, since the symptoms are not so severe, the disability not so great and the danger of fatal complications not so pronounced. Most surgeons are agreed that an uncomplicated duodenal ulcer should receive at least one course of medical treatment before surgical intervention is attempted. The work of McVicar in the preoperative preparation of patients has proved of the greatest benefit in producing the maximum improvement before operation. Patients suffering from severe anaemia due to peptic ulcer should always be under competent medical supervision before any surgical procedure is undertaken.

#### "Insulin" in Diabetes.

MARCEL LABBÉ (*La Presse Médicale*, March 27, 1926) comments upon the fact that "Insulin" has completely changed the prognosis in cases of severe diabetes and states that the immediate results of "Insulin" therapy in his hands are in conformity with those of the Canadian workers. In

the reduction of hyperglycaemia and the prevention of loss of weight "Insulin" is instrumental in transforming a serious into a benign case and in rendering the patient a useful member of society. It may be said that 50% of those patients who would certainly have perished prior to the introduction of "Insulin" therapy, are alive and well three years after the commencement of treatment. Amongst one hundred of Labbé's patients five died in a state of coma, three of infective processes (a parotitis, a sinusitis and a subcutaneous abscess respectively) and four of pulmonary tuberculosis. The writer points out that deaths from coma are common in summer, when patients are apt to wander about alone and to neglect proper treatment. Tuberculosis seems to be relatively common amongst French diabetics and "Insulin" has had no effect in preventing its occurrence. The "Insulin" treated diabetic is likely to remain "delicate" and to suffer from a number of complications. He needs very careful watching and the maintenance of a strict regimen under the direction of his doctor is essential.

#### Surgery in Presence of Diabetes.

E. S. JUDD, R. M. WILDER AND S. F. ADAMS (*Journal of the American Medical Association*, April 10, 1926) have tabulated the results of six hundred and sixty-seven operations upon four hundred and ninety-seven diabetics. Of these operations three hundred and four were of a major kind. There were twenty deaths. Ether is considered an undesirable anæsthetic; ethylene has been largely used, but local anæsthesia is the most suitable method. The operating time is always reduced to the minimum and trauma avoided as much as possible. The susceptibility to acidosis is very great, but may be entirely eliminated by suitable preoperative and postoperative treatment. The healing of wounds is uninterrupted, provided acidosis is avoided. The writers mention that chronic ulcers are sometimes helped to heal by the direct application of "Insulin" to the wound. Diabetics requiring operation should always be sent to some large medical centre where the cooperation of both physicians and surgeons is available.

#### Circulatory and Blood Changes in Artificial Pneumothorax.

R. A. BENDOVE (*Tubercle*, April, 1926) has investigated the circulatory and blood changes in fourteen cases of artificial pneumothorax. In eight cases an increase occurred in the systolic pressure of fifteen to forty millimetres of mercury and in the diastolic of ten to twenty-five millimetres. The increase in pressure lasted about one hour. The rise is of good prognostic import and is evidence of a sound myocardium. An unchanged or lowered pressure (which occurred in four and two cases respectively) is a bad sign. The

raised pressure is thought to be due to deficient oxygenation caused by deflation of one lung. In patients manifesting the increase of pressure, an enlargement of the heart was observed within ten days of the operation. An accentuated pulmonary second sound was heard in all eight instances. This occurs only with a healthy right ventricle and is thought to be due to a constriction of the pulmonary vessels both in the collapsed lung and in those of the normal lung through which a greater volume of blood must flow in each unit of time. The blood changes allow of no definite conclusions, but there is usually an increase in the red corpuscles and in the percentage of hæmoglobin. The prognosis is unfavourable, if the above mentioned changes are not found.

#### Scarlet Fever.

W. P. LARSON, E. J. HUENEKENS AND W. COLBY (*Journal of the American Medical Association*, April 3, 1926) describes a method of immunization against scarlet fever with toxin, detoxified with sodium ricinoleate. Three thousand skin test doses of toxin-soap in one cubic centimetre were injected in one thousand five hundred and forty-two subjects who reacted to the Dick tests for scarlet fever. An apparent immunity was obtained in from 77% to 90% of subjects within eight days of the treatment; 70% of these still failed to yield a reaction at the end of six months. Since there were several strains of scarlet fever toxin, it was advisable to use a polyvalent antigen in the immunizing material. Probably the antigen should also contain the streptococci of scarlet fever in addition to the toxin in order to obtain an antibacterial immunity as well as an antitoxic immunity. The above method renders possible the suppression of an epidemic of scarlet fever by active immunization. It has advantages over the use of unmodified scarlet fever toxin in that it is less dangerous and that only one dose is required.

#### Purpura Hæmorrhagica.

R. I. HARRIS (*Canadian Medical Association Journal*, April, 1926) discusses splenectomy for purpura hæmorrhagica. Purpura can be divided into two large classes, Henoch's purpura and *pelliosis rheumatica* with blood platelets normal in number and a thrombocytopenic group with platelets diminished in number. The latter group includes purpura due to infection with streptococci, staphylococci and pneumococci, hæmorrhagic smallpox, leucæmia and pernicious anaemia, purpura due to benzol poisoning and idiopathic purpura. Idiopathic purpura or essential thrombocytopenic purpura, also known as *morbus maculosa* or Werlhof's disease, is unassociated with any other known pathological condition; it is commonest in female children, is not hereditary, but occasionally is present from birth. Its onset is often associ-

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ated with an infection. The symptoms are hemorrhages from the skin and mucous membranes, epistaxis, menorrhagia; bleeding from the gums and hamatemesis occur. Many forms of hemorrhagic diathesis are really essential thrombocytopenic purpura. Acute cases are often fulminating and the patient dies in one or two days, these cases may really be due to infection and are wrongly classified in the essential group; they do not respond to splenectomy. The chronic variety occurs in all degrees of severity and lasts for months or years; it is sometimes intermittent. The spleen is palpable in 75%. The blood platelets are reduced from 200,000 per cubic millimetre to 100,000 or less; often the count was as low as 2,000 or 3,000. As the count falls below 80,000 bleeding becomes persistent. The bleeding time, that is the time necessary for spontaneous cessation of bleeding from diagnostic punctures, is prolonged from the normal two or three minutes to ten to fifteen minutes. The blood, if drawn into a test tube, clots in the normal time, two or three minutes, but the clot is soft, contains little fibrin and does not retract and exude serum. A secondary anemia is present. Blood transfusion is of temporary value. Splenectomy is the correct treatment. After operation the number of blood platelets increases to normal, but falls considerably after a few weeks and the hemorrhages cease. Recurrence sometimes is noted, generally in association with an infection. The pathology of the disease is uncertain.

#### Hæmoptysis.

D. S. BEILIN (*American Journal of Roentgenology*, October, 1925) emphasizes the importance of X ray examination in unusual cases of hæmoptysis. The paper is based on the examination of four hundred and ninety-five cases of hæmoptysis occurring in the Massachusetts General Hospital. Pulmonary tuberculosis and mitral disease are the two commonest causes of blood spitting and they are not included in this series. The uncommon causes are: lung abscess, neoplasm, bronchiectasis, foreign bodies, chronic bronchitis with asthma, pneumokoniosis, actinomycosis, blastomycosis, streptothricosis, pneumonia, syphilis and lymphatic leucæmia. Hæmoptysis is very common in lung abscess and in carcinoma. Bronchiectasis frequently is associated with hæmoptysis. Although it is not always possible to make a differential diagnosis by radiography, still the presence and site of a lesion may be demonstrated and the clinician's attention is directed to the lesion. This is of great importance when no clinical evidence of a lesion has been found by ordinary methods. In lobar pneumonia the amount of blood expectorated is slight, but occasionally it may be alarming. Pneumonia complicated by pulmonary tuberculosis is often difficult to diag-

nose. Skiagrams in lobar pneumonia show an area of density usually corresponding to a lobe. Thickened bronchial markings persist for a long time after pneumonia. Bronchiectasis is usually associated with fibrosis. The diagnosis of fungus infections must be made with the microscope, as the X ray appearances are those of lung abscess.

#### Thoracoplasty.

O. ZIEGLER (*Deutsche Medizinische Wochenschrift*, April 2, 1926) states that in his experience the operation of thoracoplasty is not dangerous in all uncomplicated unilateral cases of pulmonary tuberculosis. He gives details of eighty-six patients so treated with no deaths. In seventeen patients the tuberculosis was complicated by pyopneumothorax and four died. Two of these deaths were due to sepsis and two to cardiac weakness. In a series of twenty cases of non-tuberculous lesions (chronic pneumonia, bronchiectasis and gangrene) three patients died. However, the outlook in all these complicated cases without operation is bad. The author lays special stress on the preoperative treatment. Patients are kept in hospital for at least two weeks and encouraged to take daily walks. Digitalis is given for eight days prior to operation. The patients are encouraged to talk to those already operated upon and are thus encouraged and reassured. No morphine is given prior to operation. The ribs are removed in one piece. Local anaesthesia with 0.5% novocaine-adrenalin solution is employed for the soft parts. The intercostal spaces are infiltrated with a 1% solution to a depth of 0.5 centimetre. Occasionally a general anaesthetic is necessary when the periosteum is reflected and the bone severed. The after treatment is most important. The chest wall is carefully supported when the patient coughs and morphine is freely given during the first day. On the following day the dressing is changed and the drain removed. Respiratory disturbances are seldom seen. They occurred when the lung still retained part of its elasticity and was not bound down by adhesions and chronic infiltration.

#### Endothelioma of the Thyroid Gland.

F. DE QUERVAIN (*Deutsche Medizinische Wochenschrift*, April 9, 1926) discusses the aetiology and symptomatology of eleven endotheliomata observed in a series of fifty-five malignant goitres. The tumour is usually situated in the walls of hemorrhagic cysts. It may be in a circumscribed area and is frequently overlooked. The majority of cases occurred in men over sixty years of age. The condition must be suspected in any individual who has had a goitre for a long period and who then consults a surgeon because he feels that something is wrong. There is usually no obvious increase in volume of the swelling. Of greater importance is

a history of the swelling becoming harder and especially if it be more fixed. This fixation is more definite than is seen with deep seated chronic inflammatory cysts. Many of the patients in the author's series complained of shooting pains and several had paralysis of the sympathetic or recurrent laryngeal nerve. Metastases occurred as with other malignant growths and in two cases the vertebral column was affected. The long bones were not implicated to the same extent.

#### Cardiospasm.

F. H. DIGGLE (*The Practitioner*, April, 1926) discusses cardiospasm or achalasia of the oesophagus. It is characterized by obstruction at the lower end of the oesophagus with hypertrophy of the oesophageal wall above, but without any apparent cause after death. It has been attributed to spasm and alternatively to failure of relaxation. Gastric and duodenal ulceration may give rise to the above condition sometimes. The X ray picture is characteristic, but carcinoma at the cardiac orifice may produce a similar picture. The symptoms are epigastric pain and choking soon after eating, breathlessness and vomiting. The symptoms may be relieved by draughts of warm water. The passage of a mercury filled oesophageal bougie before each meal and later once a week is the most satisfactory treatment. The bougie should not pass more than 2.5 centimetres (one inch) into the stomach; it should be marked at forty and forty-two and a half centimetres (sixteen and seventeen inches) from its lower end for this reason. The procedure should be controlled by X ray examination.

#### Diphtheria.

W. P. LARSON AND H. EDER (*Journal of the American Medical Association*, April 3, 1926) report their experiences in immunization against diphtheria with toxin detoxified with sodium ricinoleate. Diphtheria toxin is instantly detoxified when appropriately mixed with sodium ricinoleate, but its antigenic properties remain unimpaired. Animals were immunized against diphtheria in this way. Human subjects were then tested. Subjects who reacted to the Schick test, each received by intramuscular injection 0.125 L. toxin in a 1% soap solution in a total volume of one cubic centimetre. Immunity, as shown by failure to react to the Schick test, developed within five weeks in 38% of these subjects after one injection. When two injections were given in another group at intervals of one week, 48% failed to react to the Schick test twelve weeks later. The advantages of this method of immunization were that no reaction was caused and that no liability to serum sickness was induced, since no antitoxin was used. This was important in case diphtheria antitoxin had to be given later.

## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held in the Medical Society Hall, Albert Street, East Melbourne, on June 2, 1926, Dr. H. DOUGLAS STEPHENS, the President, in the chair.

#### Urogenital Tuberculosis.

Dr. C. GORDON SHAW read a paper entitled "Urogenital Tuberculosis" (see page 167).

Mr. A. J. TRINCA, after congratulating Mr. Shaw on his very able paper said that he wished to discuss one or two points in the pathology of renal tuberculosis. He expressed doubt regarding the view that renal tuberculosis was always secondary to a tuberculous focus elsewhere in the body. In several subjects of renal tuberculosis who had died, and upon whom he had made a *post mortem* examination, a careful search had failed to reveal a primary focus. He could conceive the possibility of tubercle bacilli effecting an entry through perhaps a fissure in the tonsil or perhaps through the mucous membrane of the alimentary tract and thus infecting the renal tissue through the blood.

Mr. Shaw had referred to the apex of the pyramid as the site of the original lesion in the kidney from which point there was subsequently early involvement of the renal pelvis. A study of the pathology of renal tuberculosis had suggested to Mr. Trinca that the base and not the apex of the pyramid was the site of origin of the tuberculous process in the majority of cases and he was disposed to connect the insidious onset of symptoms with this observation.

With reference to the spread of infection to the ureter Mr. Trinca stated that gross ulceration was rarely found in the mucous membrane of the ureter or of the pelvis. In sections examined by him microscopically the spread seemed to take place mainly or entirely in the submucous tissue. This seemed to indicate that the living epithelium of the ureter and renal pelvis was endowed with a special resisting power to tuberculous infection. Mr. Trinca suggested the possibility of a special strain of tubercle bacillus as the causative agent in renal tuberculosis, stating that he based the suggestion on the following observations: (i.) When guinea pigs were inoculated with urine containing tubercle bacilli the response appeared different from that following the injection of tubercle bacilli derived from sputum. Often guinea pigs failed to succumb when there was every reason to believe that the urine injected contained living bacilli and at times the tuberculosis induced was slow in its development, taking the form of large tuberculomata rather than the typical lesions occasioned by the human bacillus. (ii.) In fatal cases of pulmonary tuberculosis renal involvement apart from a generalized miliary spread was extremely rare.

With regard to treatment he held strongly that conservative treatment was quite useless and that delay in resorting to operation was unjustified.

He quite agreed in the pessimistic views expressed by Mr. Shaw regarding the prognosis of tuberculous disease of the testis. Surgical treatment of this condition was unsatisfactory. He had always been a sceptic with regard to the utility of tuberculin in the treatment of tuberculosis, but he believed that it had some value when the testis was affected, at least in the early stages. In these circumstances he preferred the use of tuberculin to operation and combined with it general hygienic treatment.

Mr. J. T. TAIT expressed his appreciation of the able presentation of a difficult subject and referred to several problems in the diagnosis of renal tuberculosis. He quoted the histories of three recent cases which illustrated the points referred to.

One patient had complained of repeated attacks of mild renal colic on the left side accompanied by the passage of thin worm-like clots of blood. Eighteen months previously he had had fever, pain and frequency in micturition and

hæmaturia. On cystoscopic examination no pathological changes could be detected in the mucous membrane of the bladder, but there was an obstruction to the passage of a ureteral catheter at a point about 2.5 centimetres from the left ureteric orifice. A lantern slide exhibited by Mr. Tait demonstrated a stricture of the ureter at this point by means of a ureterogram. There was also in the film the mottled shadow of a large calcified abdominal lymph gland. Tuberculosis of the kidney was suspected and operation advised. Several cysts were found in the upper part of the kidney and the organ was removed. It was only after microscopical examination of the renal tissue that the presence of tuberculosis was proved and the finding was confirmed by the result of the inoculation of a guinea pig with fluid from a sinus which subsequently developed in the wound.

Another patient had presented severe and widespread lesions in the bladder, yet after repeated examinations no bacilli could be found in the urine from either side. The functionally deficient kidney had been removed and the diagnosis of tuberculosis was confirmed by the examination of sections under the microscope.

Mr. Tait asked, could one be sure that the disease was unilateral, even if functional tests indicated the presence of one healthy kidney and bacteriological examination of the urine from that side yielded no evidence of tuberculosis? Braasch, of the Mayo Clinic, had found that in 20% of the patients examined the urine from the supposedly good kidney gave positive inoculation results.

Again, cystoscopic appearances in many cases suggested that the second kidney might become involved by an ascending infection from the bladder, as active tuberculous lesions were so often seen around the ureteric orifice on the supposedly good side. In cases of severe infection of the bladder a reflux could be demonstrated by the use of opaque fluids which passed from the bladder up the ureter to the kidney.

Mr. Tait referred to the postoperative sequelæ mentioned by Mr. Shaw, tuberculous infection of the operation wound and the formation of a urinary fistula in the loin. He held that attention to four points in the operative technique would largely prevent the occurrence of these conditions.

- (i.) A large tuberculous sac or a cystic kidney should be removed without spilling any of its contents.
- (ii.) As the tuberculous process tended to spread outwards beyond the kidney, as much as possible of the perirenal fat should be removed.
- (iii.) The method of dealing with the ureter was a factor of great importance and one upon which authorities differed. Thomson-Walker removed three to five centimetres of the ureter, but was prepared to operate again in six months' time if it became necessary to remove the remaining portion of the ureter. Judd followed the same procedure, but believed that the ureter was rarely the seat of a persistent infection. Others advocated complete ureterectomy.
- (iv.) In many cases the wound could be closed without drainage and an infected sinus avoided. He had obtained healing by first intention after removal of a badly infected kidney.

In conclusion Mr. Tait said that he would like to see more attention paid to postoperative treatment. The disease was not cured by removal of the kidney and continued medical and hygienic treatment was necessary.

Mr. VICTOR HURLEY expressed the pleasure he had derived from listening to Mr. Shaw's sound and commonsense statement of the subject of urogenital tuberculosis.

He also had experienced difficulty in certain cases in deciding which kidney was involved in the presence of gross cystitis if the disease was unilateral in the kidney. He had observed that even if the disease was definitely unilateral there might still be distinct changes in the vesical mucosa round the ureteric orifice on the healthy side and the subsequent history proved it to be healthy. The changes at the ureteric orifice might even be more pronounced on the good side than on the bad side.

He believed that textbooks laid too much stress on the difficulty of finding tubercle bacilli in the urine and had found that careful repeated examinations would reveal the presence of the bacilli in the urine of the majority of patients who exhibited pyuria dependent on renal or vesical tuberculosis.

With reference to renal efficiency tests Mr. Hurley said that he relied on the use of indigo-carmin. It was rapid and reliable, especially if given intravenously and was of great value in out-patient work.

He remarked on the difficulty of catheterizing the ureter in the presence of advanced tuberculous cystitis and the embarrassment occasioned by the presence of blood and pus in the urine in a bladder which would tolerate only two or three ounces of fluid.

The surgical treatment of genital tuberculosis was very depressing and he was less and less inclined to resort to radical measures. It was very unusual to find the infection confined to one epididymis. Rectal examination often disclosed the presence of tuberculosis elsewhere, and primary infection of the prostate was more common than was generally believed. For these reasons the surgical treatment of genital tuberculosis did not offer good results. He had never been inclined to perform Young's operation and had not observed any individual patient in whom he considered that it would have been justified, particularly as the condition was usually met with in young and middle aged adults. He had been impressed by the manner in which the general health of patients with genital tuberculosis had been maintained for a long time. He would like Mr. Shaw to give the details of the dosage of tuberculin as used by him and to indicate what he considered the best method of dealing with patients affected by advanced tuberculous cystitis.

DR. H. DOUGLAS STEPHENS thanked Mr. Shaw for his paper and stated that in his experience among children primary urogenital tuberculosis was very infrequent. On the other hand he had frequently met with secondary tuberculosis in these organs. He had observed painless hæmaturia in two children who ultimately manifested tuberculosis in situations apart from the kidney and urinary tract.

In investigating renal efficiency he had used phenolsulphonphthalein a good deal, but he was inclined to prefer indigo-carmin.

MR. SHAW in replying to Mr. Trinca said that he could not speak authoritatively on the question as to whether renal tuberculosis was always a secondary infection, but the onus of proof lay on those who stated that it was not. It was difficult for him to believe that a few stray bacilli in the blood stream could produce renal tuberculosis when large numbers of tubercle bacilli were known to pass through the kidney without infecting it.

With reference to the site or origin of the disease in the kidney Mr. Shaw said that in the majority of kidneys which he had removed, he had found the pelvis infected and showing ulceration which extended into the pyramids; foci were scattered through the organ, but the pelvic invasion was the most extensive in reasonably early cases. He realized that instances did occur in which the pelvis escaped infection.

He had noted that the ureter sometimes escaped ulceration, at the same time showing great thickening as the result of submucous infiltration. He was in complete agreement with Mr. Trinca regarding the necessity for avoiding delay in the removal of the affected kidney, but wished to emphasize the postoperative utility of tuberculin and the importance of hygienic treatment. His routine practice in the use of tuberculin was to commence with 0.0001 milligramme, but if the disease were severe or the patient's body weight very small he would start with 0.00005 milligramme. Weekly injections were given, the dose being doubled at each injection until a reaction developed, when the same dose was repeated until the patient tolerated it without reaction. The doses were then continued until 0.001 or 0.002 milligramme was reached. Such a course of the injections was given at intervals of three months.

He had been interested in the remarks of Mr. Tait and in the case records he had furnished. He agreed that it

was difficult to be quite sure that the apparently healthy kidney was really so. He knew of no way to come to a decision other than the ureteral catheter. A margin of error must remain and there was a risk that in some cases the wrong kidney might be removed. He had not been aware of the work of Braasch whose figures corresponded with the mortality figures after nephrectomy.

Mr. Tait had referred to the danger of death after cystoscopy and he (Mr. Shaw) had seen two cases in which this had occurred. Cystoscopy should not be carried out without careful consideration in the presence of tuberculous cystitis. Mr. Shaw indicated certain precautions which it was necessary to observe.

The difficulty of catheterizing the ureter in patients with advanced vesical tuberculosis was sometimes very great. The patient could not stand much handling and the operation should be performed quickly in a bladder of small capacity. He sometimes catheterized one ureter at a time on different days. Gentle manipulation was called for and although repeated examinations were undesirable, they were sometimes necessary. He had seen patients, such as had been referred to, in whom the ureteric orifices opposite to that of the diseased kidney had shown the most decided changes around it. Hence it was really necessary to catheterize both ureters.

There was really little to choose between indigo-carmin and phenolsulphonphthalein as regards efficacy. The decision as to which to use was a matter of individual preference. He thought that it was easier to estimate the total amount of phenolsulphonphthalein excreted. The coloured reflux might be of use occasionally, but as a rule he did not like it.

With reference to advanced tuberculous cystitis Mr. Shaw said that there was no effective treatment and that very little could be done for the subjects of this condition. Suprapubic cystostomy might be performed, but there was grave risk of secondary infection. Relief of pain was the main indication in treatment. The implantation of the ureters in the loins had been suggested, but this involved a severe operation for these patients.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Women's Hospital, Crown Street, Sydney, on July 8, 1926. The meeting took the form of a series of clinical demonstrations by members of the honorary staff.

#### Chronic Nephritis.

DR. E. LUDOWICI showed a patient, aged thirty-five years, a married woman, who had come to hospital pregnant for the sixth time. She had five children, three of whom had been born prematurely. Two deliveries had been instrumental. With the last three pregnancies the patient had suffered from severe kidney trouble and after each confinement *post partum* hæmorrhage had taken place. The last menstrual period had occurred from February 28 to March 3, 1925, and confinement was due on December 7, 1925. The patient had been admitted to hospital on November 1, 1925, with œdema of the feet and ankles and complaining of breathlessness. Examination had revealed a thin, sallow woman, somewhat breathless and with a slightly dilated heart. Her systolic blood pressure had been 165 and her diastolic blood pressure 100 millimetres of mercury. A cloud of albumin and some casts had been found in the urine. The patient had been kept at rest and on a starvation diet for some days and had then been given a "white diet." At the end of a month albumin had still been present in the urine and the systolic blood pressure had been 150 millimetres of mercury.

On November 26, 1925, it had been decided to perform Cæsarean section. This determination had been made after consideration of the kidney trouble and of her previous *post partum* hæmorrhages. She had certainly looked as if she could not afford to lose any blood. The operation had been performed by Dr. Ludowici and had been followed by sterilization. The child, a male, had weighed 2.5 kilograms



(five and three-quarter pounds). The patient had made slow progress owing to anemia and she had been put on iron and arsenic. On December 19, 1925, transfusion of half a litre of blood from her brother had been carried out. She had gradually become a little stronger, but even when she went home, her pulse rate had been abnormally fast.

Dr. Ludowici also showed a patient, aged thirty-nine years, a married woman, who had been pregnant for the sixth time. She had four children, two of whom were living. Twins born at seven months had died. The patient had suffered from kidney trouble with her second and third pregnancies. Since the birth of her last baby she had had two miscarriages and these were said to be due to kidney trouble. She had been treated at Sydney Hospital for chronic nephritis and had had her appendix removed during the fourth month of her sixth pregnancy.

The patient had been admitted to hospital on June 26, 1926, with a history of breathlessness and transient oedema of the face and hands. She had been treated for albuminuria on and off during her pregnancy. The patient had a healthy appearance, no oedema was present and she had no frequency of micturition. The uterus was the size of a six and a half months' pregnancy. The urine contained pus and albumin. The systolic blood pressure was 165 and the diastolic 95 millimetres of mercury. The amount of urine passed in a day was approximately a litre and a half. The patient was being treated by rest in bed and "white diet" with a mixture of citrate of potash and buchu.

Dr. Ludowici showed a married woman, aged thirty-six years, who had been pregnant for the fifth time. During the first pregnancy she had suffered from fits and the baby was still-born. The second baby had also been still-born and the patient could give no reason for this. The third and fourth pregnancies had ended in miscarriage with symptoms of kidney trouble. The patient had been admitted on May 28, 1926. At this time she was four and a half months pregnant and had been under the care of a private practitioner. During the whole of her pregnancy she had been on a strict diet. She had not actually felt ill, but had been told that she was suffering from chronic kidney disease.

On examination the patient had looked well. Her tongue had been coated and dry. Her mouth was full of gold crowns. Her cardiac dullness extended more outwards and downwards than usual. The heart sounds were somewhat metallic in quality, the first and second sounds being equally accentuated. No tenderness had been present over the liver or kidneys and the uterus had been the size of a four months' pregnancy. The urine had contained a cloud of albumin and casts and the quantity passed in twenty-four hours had averaged approximately one litre. The systolic blood pressure had been 230 and diastolic 150 millimetres of mercury. The patient had been kept under observation and had been given a starvation diet. The condition of the urine had remained unchanged. The systolic blood pressure had been reduced to 205 and the diastolic to 135 millimetres of mercury. The patient had suffered from bronchitis, said to be chronic. One June 13, 1926, tents had been inserted into the *os uteri* and two days later they had been removed. The membranes had ruptured and a dirty brown fluid had escaped. The uterus had been packed with iodoform gauze. On June 19, 1926, the uterine contents had been expelled and the uterus curetted. The patient had steadily improved. The urine had become clear, though on some days it had contained a cloud of albumin. The systolic blood pressure was 160 and the diastolic 95 millimetres of mercury. The patient was feeling well.

#### Albuminuria of Pregnancy.

Dr. Ludowici showed a married woman, aged nineteen years, pregnant for the second time. The patient gave a history of one miscarriage nine months previously. At this time she had been three months pregnant and she said that she had become septic after the miscarriage.

The patient had been admitted to hospital on June 11, 1926, with a history of swelling of the legs and hands, headaches, dimness of vision and frequency of micturition.

The last menstrual period had occurred from September 21 to September 26, 1925, and the estimated date of confinement was June 28, 1926. The patient had a healthy appearance. She was slightly breathless. Her chest was normal. Her systolic blood pressure was 128 and her diastolic pressure 65 millimetres of mercury. The urine had contained a trace of albumin, but after the administration of a "white diet" and purgatives the urine had become clear. The systolic blood pressure had fallen to 100 and the diastolic pressure to 60 millimetres of mercury.

#### Pyelitis of Pregnancy.

Dr. H. A. RIDLER showed a married woman, aged thirty-seven years, who had been pregnant for the fourth time. Her former pregnancies had been normal. She had suffered from no illnesses and had undergone no surgical operation. She had been admitted to hospital on May 9, 1926. She had been an inmate two weeks prior to that date suffering from pyelitis and had left at her own risk. On the day of admission for the second time she had suffered from persistent vomiting together with scalding and frequency of micturition. She had passed urine on an average four or five times during the day and four or five times during the night. She had felt very weak.

Examination on admission had revealed a thin, emaciated woman with a yellowish, dry skin and sunken eyes and with a dry coated tongue and cracked lips. She had been unable to "keep anything down" and had vomited large quantities of green fluid. Her pulse rate had been 100 in the minute and her temperature 36.1° C. (97° F.). The uterus had been the size of a seven months' pregnancy, the position had been right occipito-anterior and fetal heart sounds had been heard. The urine had been acid and contained pus. On May 15, 1926, the patient's condition had become worse. The pulse rate had risen and the urine contained pus, albumin and casts. The quantity of urine had become reduced. Induction of labour had been carried out by the use of bougies and iodoform gauze. A premature baby had been born and died. The patient had commenced to improve gradually and became convalescent. One June 22, 1926, great tenderness had been present over the left kidney, a palpable mass had been present and no pus was found in the urine. On the following day the temperature had fallen, the mass in the loin had suddenly disappeared and pus had appeared in the urine. At the time of demonstration the patient was again convalescent. It was intended to treat her with an autogenous vaccine.

Dr. H. C. E. DONOVAN showed a married woman, aged thirty-seven years, who was pregnant for the second time. The first delivery had been instrumental and the patient had been treated for pyelitis. Abdominal section had been performed for retroversion of the uterus as well as ten operations for the removal of diffuse lipomata of the hips. The patient had been admitted to hospital on July 5, 1926, with a history of pain in the back of one day's duration. Dr. Donovan pointed out that the patient was pale and unhealthy looking and slightly breathless. The chest was normal. Tenderness was present over both kidneys and in the lower part of the abdomen. The uterus was the size of a six and a half months' pregnancy. The urine was normal. The systolic blood pressure was 160 and the diastolic pressure 60 millimetres of mercury. Diet was being restricted to fluids, chiefly barley water and milk. The urine contained pus and a provisional diagnosis of pyelitis had been made.

Dr. R. MCD. BOWMAN showed a married woman, aged twenty-two years, who had been pregnant for the second time. The patient had suffered from rheumatic fever when four months pregnant with her first baby. The child had been born prematurely at seven months and had subsequently died. When pregnant for the second time the patient had been taken ill at the end of the first month with shivering attacks and a pain in the back. She had been under her doctor's treatment until June 7, 1926, the date of admission and had then complained of persistent vomiting and pain in the back. On admission the patient had presented a thin and wasted appearance with flushed cheeks. Her tongue had been dry and the vomited material had been copious and green. She had complained of pain

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and tenderness had been present over both kidneys. The pulse rate had been 100 in the minute and the temperature 37.6° C. (99.8° F.). The uterus had been the size of a three months' pregnancy. The urine had contained pus and numerous granular casts. The patient had improved for a time and the urine had become somewhat more clear. On June 20, 1926, the temperature had become elevated and she became as ill as she was when first admitted. Pus and casts had again appeared in the urine. Induction of labour had been carried out by the use of tents and gauze packing. Later the patient had steadily improved.

#### Pyelo-Nephritis with Cystitis.

Dr. E. LUDOWICI showed a married woman, aged twenty-six years, pregnant for the second time. The patient had been admitted to hospital on June 9, 1926, with a history of having been taken ill fourteen days previously with pain over the bladder and scalding on micturition. She had had no pain in the back and no shivering attacks and no history of previous illness could be obtained. On admission the patient had appeared healthy, her tongue was coated and her uterus was the size of a six and a half months' pregnancy. Tenderness had been present over both kidneys and bladder and the urine contained both albumin and pus. The quantity for twenty-four hours was normal. The systolic blood pressure was 140 and the diastolic pressure 85 millimetres of mercury. Fluids only had been given, supplemented later by milk foods. A mixture containing citrate of potash and buchu had been administered. The patient had improved and the symptoms had disappeared for a while, reappearing on June 27, 1926. Since that date the patient had manifested another temporary improvement and it was regarded as possible that labour would be induced when the child was viable.

#### Congenital Absence of the Vagina.

Dr. H. A. RIDLER showed a married woman, aged twenty-three years, who had been admitted to hospital on June 12, 1925, in labour in her first pregnancy. The patient had been admitted with a diagnosis of imperforate hymen. According to the history the membranes had ruptured. Examination had revealed a uterus the size of an eight months' pregnancy with obliquity to the left. A small orifice had been found in the perineum lined with mucous membrane, but practically no vagina had been found. The examining finger had found its way straight on to the lower uterine segment in which a small dimple could be felt. No cervix or os uteri had been found. Caesarean section had been performed by Dr. Ridler. On opening the abdomen he had found that the uterus was sausage shaped with the concavity to the left. The uterine muscle was thin and clasped the baby tightly. No liquor amnii had been present and a male child weighing 2.25 kilograms had been removed. On further examination only one tube, one ovary and one round ligament had been present and these on the left side. On the right side merely a rudimentary broad ligament had been present. Fingers had then been pushed through the tissues in the position of the os in the lower uterine segment and gauze had been passed outwards. The patient had subsequently made an uninterrupted recovery.

#### Acute Hydramnios with Twin Pregnancy.

Dr. CECIL COGHLAN showed a married woman, aged forty-three years, who had been pregnant for the fourteenth time. Eleven pregnancies had gone to full time and nine children were living. Two miscarriages had occurred with unknown cause. The patient had been admitted from the Out-patient Department on June 3, 1926, complaining of breathlessness, swelling of the feet and legs and pain of a bearing down nature in the abdomen of two weeks' duration. The last menstrual period had occurred between January 6 and 9, 1926. The patient had had an unhealthy pasty colour, the heart and lungs were clear, some frequency of micturition had been present and the urine contained a trace of albumin. The tumour had reached to the umbilicus, no foetal parts nor foetal movements were

felt, but the patient stated that she could feel slight fluttering movements. On vaginal examination no ballotement had been obtained. The abdomen had increased in size daily and on June 15, 1926, had been the size of a full term pregnancy. The patient had experienced a great deal of discomfort. The girth at the umbilicus had been one hundred and fourteen centimetres (forty-one and a half inches) and a fluid thrill could be elicited.

On June 16, 1926, the membranes had ruptured and about four and a half litres of liquor amnii had drained away. The tumour had fallen to the level of the umbilicus. Ten days later after a slight increase in the size of the uterus the patient had been delivered of five and a half months' twins. An adherent placenta had been removed manually and twenty cubic centimetres of antistreptococcal serum had been given as a prophylactic. The patient was steadily improving.

#### Suspected Appendicitis in Pregnancy.

Dr. Coghlan also showed a married woman, aged twenty-eight years, who had been admitted to hospital on June 9, 1926, with a diagnosis of acute appendicitis. The patient had been pregnant for the third time and the pregnancy had reached the eighth month. The history given by the patient was to the effect that she had been attacked by severe pain in the right iliac region which doubled her in two. The pain had been followed by an attack of shivering and vomiting. A similar attack had occurred fourteen days previously. On admission the patient had appeared healthy, but was slightly flushed. The tongue had been slightly coated and the chest normal. Neither constipation nor frequency of micturition had been present. Tenderness had been noted in the right iliac region just above McBurney's point. The temperature had been 37.2° C. (99° F.) and the pulse rate 80 in the minute. The urine had been normal. On June 11, 1926, definite rigidity had been present in the lower part of the abdomen on the right side and what appeared to be a mass was felt. The temperature had been 36.7° C. (98° F.) and the pulse rate 90 in the minute. Several members of the staff had seen the patient and it was agreed that operative interference should be undertaken. On opening the abdomen Dr. Coghlan had found a perfectly normal appendix, tube and ovary. Nothing had been removed and the wound was closed. After operation the patient had vomited freely, but after the third day had progressed well. The patient had come into labour on the ninth day after operation and this had been normal. At no time had pus been found in the urine.

#### New Growth of the Foetus.

Dr. H. C. E. DONOVAN showed a married woman, aged twenty-seven years, pregnant for the third time. She had been admitted to hospital on July 7, 1926. It was estimated that labour would occur early in September, 1926. The patient's appearance was healthy. The uterus was the size of a full time pregnancy. Its lower pole was completely filled by a large hard mass. The back of the foetus lay on the left side and the fetal heart sounds could be heard. It was barely possible to span the head with the hand, flexion was slightly undone. On vaginal examination multiparous dilatation of the cervix was found, the head could just be reached with a finger, it felt tense, but the bones and sutures appeared to be normal. A provisional diagnosis of new growth of the foetus had been made.

#### Cæsarean Section for Altered Angle of Inclination.

Dr. Donovan also showed a married woman, aged twenty-nine years, on whom he had performed Cæsarean section for altered angle of inclination. Delivery in the first pregnancy had been instrumental and the baby still-born. The second pregnancy had been terminated by Cæsarean section, performed by Dr. Donovan and a healthy baby had resulted. The patient had had no other illnesses or operations. The patient had been admitted on May 29, 1926, and it was expected that confinement would take place on the following day. On examination lordosis had

been found. The interspinous measurement was twenty-two centimetres (eight and four-fifth inches), the inter-crystal measurement was twenty-five centimetres (ten inches) and the external conjugate was 19.3 centimetres (seven and four-fifth inches). The abdomen was pendulous. The position of the fetus had been right occipito-posterior and the head had overlapped at the brim. Dr. Donovan had performed Cæsarean section and had sterilized the patient by resection of a portion of her tubes.

Dr. CECIL COGHLAN showed a patient, aged twenty-one years, with somewhat similar measurements to those of Dr. Donovan's patient. The head had made no attempt to enter the pelvis and Dr. Coghlan had performed Cæsarean section.

#### Thrombo-Phlebitis.

Dr. Donovan's next patient was a woman, aged twenty-eight years, admitted during her fourth pregnancy on May 9, 1926. The patient had been in labour when admitted and the child had been born ten hours later. Delivery had been normal and the placenta had been expressed by the Shultz method; it had been incomplete. On the following day the patient had become feverish and her pulse rate accelerated. On May 13, 1926, the uterus had been explored under anaesthesia and a piece of placenta removed with the finger. The patient had then shown signs of toxic absorption and was very anæmic. It had been decided to treat her by injections of "Novarsenobillon." She had received three doses of 0.4 gramme at intervals of five days with some improvement. On June 9, 1926, pain and swelling of the right leg had occurred and thrombo-phlebitis of the pelvic veins with white leg had been diagnosed.

Dr. Donovan also showed a married woman aged twenty-five years, admitted in labour in her second pregnancy on June 4, 1926. She had been delivered of twins on the same day. Slight bleeding had occurred between the birth of the two babies and severe atonic hæmorrhage after expulsion of the placenta. Pituitrin and "Ergot aseptic" had been injected and an intrauterine douche had been given. Bimanual compression had been maintained for thirty minutes and an intravenous injection of saline solution administered. The patient had gradually improved. On the following day thrombosis had occurred in a vein of the left thigh. The limb had been elevated and wrapped in wool. At first considerable pain had been present, but this had subsided and the thrombus which was just palpable, was not tender.

#### Pelvic Abscess.

Dr. Donovan's next patient was a married woman, aged twenty-seven years, admitted on June 6, 1926, in her seventh pregnancy with a history of vaginal bleeding and discharge and pain in the abdomen. The patient had had two children and four miscarriages. The last normal menstrual period had occurred on May 28, 1926, and bleeding had occurred from June 6 to June 8, 1926. On examination the patient's face had appeared flushed. Herpes had been found on the lips. The chest had been normal and the abdomen very tense. Tenderness had been present in the left iliac region and rigidity and restricted movement in the lower part of the abdomen. On vaginal examination the orifice had appeared lax and the cervix soft, the os admitting one finger. Definition of the uterus by bimanual examination had been impossible owing to the tenderness present. A firm, tender mass had been present in the left postero-lateral fornix.

On June 13, 1926, posterior colpotomy had been performed by Dr. Donovan and pus under considerable tension had escaped. Thickened tubes had been felt on both sides. The uterus had been explored gently and some placental debris found. Both before and after operation catheterization of the bladder had been necessary. After some days fever had occurred and the colpotomy wound had been opened, but no pus had been evacuated. Examination of a catheter specimen of urine had revealed the presence of pus and *Bacillus coli communis*. The patient was improving and feeling well.

#### Angioma of the Cervix.

Dr. Donovan also showed a married woman, aged twenty-nine years, who had been pregnant three times. She had been admitted on July 2, 1926, for operation. When the patient was five months pregnant it had been found that she had on the posterior lip of the cervix an ulcerated area which bled easily. A section had been examined and it had been reported as an angioma with proliferation of epithelium, non-malignant in nature. It had been treated by the application of picric acid and a miscarriage had occurred. Dr. Donovan pointed out that the patient was anæmic and that although the area was less red in appearance, it still bled easily. He proposed to perform total hysterectomy.

#### MEDICO-POLITICAL.

THE COUNCIL OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION has requested us to notify members of the Branch of the fact that at a conference held recently between members of the Hospital Subcommittee of the Branch Council and the Home Secretary, the outline of the hospital policy of the Branch was discussed. The Home Secretary expressed himself in favour of the main principles embodied in the policy. He was in favour of a conference at which all the bodies interested in the matter would be represented. He promised to endeavour to arrange for the holding of such a conference. He further promised to give the Branch every opportunity to place its views before the conference on all matters affecting its members.

#### NOMINATIONS AND ELECTIONS.

THE following have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Tipping, Frank, M.B., B.S., 1907 (Univ. Melbourne),  
Moulameln, New South Wales.  
Pearlman, Samuel, M.B., 1925 (Univ. Sydney), 436,  
New Canterbury Road, Dulwich Hill.  
Donaldson, William Scott, M.B., Ch.M., 1924 (Univ.  
Sydney), Lane Cove Road, Gordon.

#### Obituary.

##### CHARLES KINNAIRD MACKELLAR.

COURAGE, determination to fight for a righteous cause, wide vision, sound judgement and unequalled honesty of purpose, these are the attributes that made Sir Charles Kinnaird Mackellar a great man. His eminence was as a sociologist, but throughout his public life his actions and aspirations were tinged by his medical knowledge and by his understanding of human beings. The story of his life proves that psychology is a medical science and that the pædagogogue who would attack the problem of the training and care of mentally defective children without having himself a medical education, is attempting the impossible.

Charles Mackellar was born in Sydney on December 5, 1844. His father was a distinguished medical practitioner. The boy received his scholastic education partly in Scotland, but chiefly at the Sydney Grammar School. At the age of sixteen he left school and was placed on a station in the northern rivers district, where he obtained an insight into pastoral industry of Australia. It was his father's desire that he should enter the medical profession and about the year 1866 Charles Mackellar was sent to Scotland. He studied medicine at the Glasgow University where he gained many distinctions. He graduated in 1871 and immediately returned to New South Wales. For some time he again sought the land, but in 1875 he took up his abode in Liverpool Street, Sydney, and started a practice

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that was destined to be a highly successful one. As a student he had acquired a sound knowledge of his profession and his keen intellect and quick wit enabled him to step into the first rank of the profession at an early date. He was a close friend of the late Sir Philip Sydney Jones and did not hesitate to enter into competition with him on many occasions. He worked stupendously in the early days of his practice in Liverpool Street, in College Street and later in Macquarie Street. Had he confined his energies to general practice, Charles Mackellar would have gone down to posterity as an eminently successful and much beloved physician, a friend and counsellor of the needy, the sick, the poor. But his ambition and his mental equipment destined him to become a reformer, a pioneer and a leader.

In 1882, that is when he was thirty-eight years of age, he was appointed to the office of President of the newly created Board of Health. Hygiene and preventive medicine were far less highly developed in those days than they are today. There were few men trained in sanitary science in Australia then and fewer still who had a grasp of the essential problems of a health authority. Charles Mackellar had had no special opportunities to equip himself for this office, but his vision was so wide that he recognized the objective and conceived the means wherewith he could attain that objective. He planned his department with the consummate skill of genius. He remained uninfluenced by political considerations, but kept humanity and human suffering in front of his eyes; no one could have built up a better scheme for the Board of Health than he. About the same time he acted as adviser to the Government of New South Wales in matters of hygiene and preventive medicine. It may be pointed out that it was through his intermediation that the Quarantine Station was erected at North Head and that he was responsible for the Coast Hospital being erected at Little Bay. He advocated the adequate provision for the isolation of persons suffering from infective diseases. In 1885 he resigned his office at the Board of Health and in the following year he allowed himself to be elected to the Legislative Council. A measure was being introduced by the Government of the time to improve the public health. The late W. B. Dalley had charge of the Bill, but he realized that his knowledge of the etiology and pathogenesis of disease was too limited to enable him to present the arguments with conviction to the House. He therefore sought the aid of Charles Mackellar and that aid was gladly and admirably given. In spite of his eloquent advocacy of the important clauses, the Bill was not carried. Later it was reintroduced in a modified form and became law. Within a year of his entry into the Upper Chamber he was appointed Minister for Mines in the Jennings Government and served as the leader of the Ministry in the Legislative Council. It is unnecessary to extol the value of his parliamentary activities. That is a matter of history and all who read the records of the State of New South Wales, must become familiar with the name of Charles Mackellar. Party interests never prevented him from doing what he knew was the right thing to do. His political friends and colleagues often feared his intervention, for he allowed nothing to stand in his way if some injustice had to be exposed or some wrong had to be righted.

The esteem in which his colleagues in the medical profession held him is reflected in the fact that in 1883, while still a junior member of that profession he was elected President of the New South Wales Branch of the British Medical Association. The honour of the selection is all the greater in view of the fact that the Branch had received recognition but three years previously and in consequence the number of senior, active members of the Branch who might have been chosen before him, was considerable, even in those days. His restless, ambitious spirit, ever striving to effect what has been aptly termed mass amelioration, ever determined to use his wide professional knowledge and ripe experience for the benefit of the whole community, compelled others to give him the first place, the place of leadership. His was a very busy life, but like nearly every busy man, he found time and occasion to attend meetings, to speak forcibly for the benefit of his colleagues and to interest himself in themes which at first sight seemed to be foreign to him.

In 1899 Charles Mackellar suffered a terrible grief. His eldest son, Keith Kinnaird, joined the seventh Dragoon Guards and was killed in action in the Boer War.

About the end of the century he turned his attention to the care of delinquent and mentally deficient children. In 1902 Sir Arthur Renwick retired from the position of President of the State Children's Relief Department and it followed as a matter of course that Charles Mackellar was asked to fill the vacant chair. As soon as he entered into office he set himself the task of ascertaining at first hand the manner in which the State children were living, the types of children who found their way to wardship and the antecedents of these children. The results of his inquiries were a revelation to himself and to others. It was, of course, common knowledge that juvenile delinquents and State wards belong in the main to two classes. The first and perhaps larger class is that of the mentally deficient child. Charles Mackellar realized from the first that no endeavour could be more foolish, more futile, more sophistical than to punish mentally deficient children for misdemeanours or even crimes or to subject them to an educational system suited to normal children. He realized that the delinquencies of these children, the offences against moral conventions, the aping naughtiness were the results of developmental defects of the brain, the misfortunes of handicapped children, not their faults. The fault is often to be found in the behaviour of their parents. The second class is that of the neglected, ill-used or deserted child. Here was a special problem. It would be criminal to prescribe the same treatment to all State children. The moron, the moral delinquent, the vicious child had to be curbed, controlled, trained as far as its limited capabilities would allow. Above all its influence should be removed from other children and particularly from those of susceptible age and temperament. Again it became obvious that the woman, left destitute by a drunken and dissolute husband, should not be deprived of her young child because she was compelled to appeal to the State for assistance. The child should be nominally a ward of the State, but as long as the mother was capable and willing to tend it properly and to exercise maternal care, she should be given the financial aid that otherwise would be found for the care of her child. He favoured and extended the boarding out system under satisfactory control and introduced some fundamental reforms into the practice in New South Wales. He disliked institutional treatment, save for mentally deficient and unmanageable children. He increased the contributions paid to foster parents for boarded out children to a reasonable sum. Previously the payments had been quite inadequate. To his intense amazement and joy, he found that there existed among the women who received State children into their homes, women with very limited means of their own, a spirit of true benevolence. He had a very high regard for the greater number of the foster mothers. As time progressed he erected admirable homes for delicate and invalid children at Mittagong and for defective children at Parramatta. He provided three special homes for mothers with their infants and similar institutions. He also founded "Ormond House," the home for delinquents who had been before the Children's Court. Under his control, with the very able assistance of Mr. A. W. Green, the present President, the control of these unfortunate children has improved out of recognition. It has become a pattern for the whole world.

Early in 1903 Mr. R. E. O'Connor was appointed a judge of the High Court. This appointment left his seat in the Senate of the Commonwealth vacant. Charles Mackellar was selected to fill the vacancy. But he had identified himself for too long with the State of New South Wales and with a thousand and one movements in that State. Moreover, he was not an advocate either of unification or of a liberal system of federation. The absence from Sydney to be in his seat in the Senate made too great a call upon him. After a session he relinquished the Federal Upper House and returned to the Legislative Council of his own State.

Later in the same year the Governor of New South Wales appointed a Royal Commission to inquire into the causes contributing to the decline of the birth rate and to



issue a report. The subject bristles with difficulties and demands care, circumspection and courage in its elucidation. Among those selected as Commissioners were Charles Mackellar, the late Normand MacLaurin, Dr. Joseph Foreman, Dr. R. T. Paton, the late J. B. Nash, Dr. T. Fiaschi, and seven other persons of prominence in political, commercial and official life. Charles Mackellar was chosen to be the President. Later Dr. R. H. Todd was appointed associate to the President, a very happy arrangement. During the course of the investigation the reference was extended to include the subject of the causes of infantile mortality. Charles Mackellar proved himself to be an admirable head of this Royal Commission. He displayed the power of sifting evidence, of directing pertinent questions to the witnesses, of bringing reason and logic into the analysis and of displaying tact, patience and masterly skill in the conduct of the inquiry. The report which was issued on March 4, 1903, is a great work. It reflects credit on all concerned with its production, but chiefly on Charles Mackellar.

In 1912 his name appeared in the New Year Honours list. He was created a Knight Bachelor in recognition of his important work as a philanthropist, sociologist and hygienist. He had retired from practice some years before. All his energies were being devoted to the children, the poor, the unfortunate, the people who stirred his heart.

When about to undertake a journey to the old world and to America, Charles Mackellar received a commission from the Government of New South Wales to inquire into the methods of treatment of delinquent and neglected children in Great Britain, in the continent of Europe and in the United States of America. He undertook an extensive study of the prevailing systems; he saw much, he learned much, but he taught more. In France his doctrines were regarded as too idealistic. Restraint, compulsion, severe discipline were the order of the day. In Denmark and Germany Charles Mackellar found a humaner tendency and his methods were applauded and noted for emulation. In England, too, and in America he was regarded as a pioneer in this branch of sociology. He issued a valuable report in 1913 on his return to Australia. In the same year he reported to the Government on feeble mindedness and illegitimacy in their relation to the delinquency of children.

In 1916 he resigned the Presidency of the State Children's Relief Board and, as has been mentioned, was succeeded by Mr. A. W. Green, his erstwhile amanuensis and assistant. The New Year Honours list in 1916 again contained his name. He was created a Knight Commander of the Most Honourable Order of Saint Michael and Saint George. Mention should be made at this juncture of some charges which were levelled in 1920 against the State Children's Relief Board and its administration by Charles Mackellar and the present President. A commissioner was instructed to inquire into the matter and a report was issued. We found it necessary to point out in these columns that the commissioner had failed to understand the problems which Charles Mackellar had approached and handled with such evident success during a period of fourteen years. The report was shown to be the result of a superficial investigation by one who had no special training or natural ability to undertake it. Those who understood, recognized that both Charles Mackellar and Mr. A. W. Green had carried out their duties most admirably. Charles Mackellar continued to interest himself in the welfare of women and children and of the less fortunate section of the community. In 1917 his open letter to the Minister of Public Health of New South Wales on "The Mother, the Baby and the State" and a brochure published in the same year on "Mental Deficiency" may be cited as excellent examples of his clear reasoning and courageous determination to set matters aright. During the more recent years, advancing age and still later failing health robbed the community of his valuable services, his friends and disciples of his powerful aid and of his genial companionship.

In private life Charles Mackellar was charming. He was a staunch friend whose strong hand was ever extended to help and to guide. He was a loving husband and father, an intellectual comrade and a kindly critic. He was

always just. In business circles he attained a high position. As President of the Bank of New South Wales he was esteemed and admired. He was a director of many flourishing commercial concerns.

He is survived by his widow, Lady Marion Mackellar, the daughter of the late T. Buckland, one daughter, Miss Dorothea Mackellar, whose name is justly familiar as an artistic writer in prose and verse, and two sons. The sympathy of the medical profession is extended to them.

## Correspondence.

### IN DEFENCE OF TONSILLECTOMY.

SIR: After reading Dr. Murphy's letter entitled the "Defence of the Tonsils" in your present issue, please allow me to pen one in defence of tonsillectomy.

I admit that the letter comes rather as a shock and I am not sure that it was written seriously. Perhaps Dr. Murphy is playfully trying to see how large a whirlwind it is possible for a medical man to bring about his ears. Had he been more moderate I would have agreed with him. Certainly tonsils are sacrificed which should not be, but when he states that tonsillectomy should be rarely done, surely he is poking fun at his brethren.

Before I start, let me assure you that I am not one of those whose attitude is summed up by that American textbook which states that the main function of the tonsil is to provide closed limousine cars for ear, nose and throat surgeons.

There are two elements in chronic tonsillitis, namely enlargement and the infective elements. The former is more important in children, the latter in adults. Probably Dr. Murphy is right when he says many tonsils in children are removed unnecessarily, but when he includes adenoids, I object every time. Tonsils may reach a large size without causing mouth-breathing or Eustachian infection, but adenoids do both early and I cannot imagine what would be worse than to refuse removal of tonsils and adenoids to the numerous children brought up to one with deafness and earache due to them.

Mouth-breathing is a great danger to the individual and where it exists it should be corrected at once. The majority of the adult cases of chronic catarrhal deafness met with on this east coast of Australia have the narrow anterior nares, the high-arched palate and the crowded teeth caused by mouth-breathing in childhood. The association is so constant that the presumption is that had the post-nasal obstruction been removed in time, the deafness might have been prevented.

Many of the plain women we see might have been beautiful had their adenoids been removed in time.

The infected element in enlarged tonsils also exists in children as shown by the frequent enlargement of the tonsillar lymphatic glands in association with them. This is the second line of defence. In spite of the increase in the number of the lymphoid defenders which so delight Dr. Murphy's eyes, they have failed in their duty and strange to relate if these valiant little soldiers be removed, the second line of defence is able to return to its normal condition.

No, Sir, no tonsil at all is better than an infected one.

In adults would he deny his patients the relief from recurrent quinsies or recurrent acute attacks which dissection of the tonsils brings? Would he deny them the cure of fibrositis and improvement in many cases of chronic arthritis and many other conditions where no dental or other more likely cause of infection is found?

Surely he cannot deny that those conditions are frequently caused by tonsillar infection. It appears also that there is more relation between certain skin diseases and focal sepsis than we have even dreamed of in the past.

Shrinkage of the size of the tonsils alone cannot cure the infection in old fibrotic tonsils. The infection apparently lives in the crypts. No diet could cause the crypts to disappear.

May I ask what bad results Dr. Murphy has seen in properly performed tonsillectomies? Severe postoperative hemorrhage. This does not occur where hæmophilias have been excluded and where that prehistoric instrument the guillotine has not been used or where no local anæsthetic is used which causes a temporary vasoconstriction and which does not produce pharyngeal relaxation, so that it is impossible to search for and tie every bleeding point. Lung abscess. This is rare and is always due to inspired adenoids or portions of tonsil. This risk can be minimized by the use of the *La Force* adenotome which catches the adenoids in a box or eliminated by intratracheal anæsthesia where not even blood or mucus can descend the trachea. In my opinion scars in the tonsillar fossæ are the worst complication likely to follow. As Yankaner has shown, these are readily stretched by digital massage by the patient and except in singers are seldom of much importance.

In conclusion I would like to state that it is my belief that for every tonsil removed unnecessarily there must be two to half a dozen that would have been better so treated, which are still in the possession of their unfortunate owners.

Yours, etc.,

A. B. K. WATKINS,  
M.S. (Lond.), F.R.C.S. (Eng.).

Honorary Surgeon to the Ear, Nose and  
Throat Department, Newcastle General  
Hospital.

Commercial Bank Chambers,  
Newcastle,  
July 16, 1926.

#### HIGH TENSION IN IRITIS.

SIR: In Dr. Ringland Anderson's interesting and useful paper: "The Significance of Failing Vision" in your issue of July 17, there is one statement which cannot go unchallenged. Dr. Anderson says on page 73, "Sometimes a rise of tensions occurs in iritis. If this follows the use of atropine or if pain and discomfort follow its use it should be discontinued. It may be necessary to instil eserine or tap the anterior or posterior chamber." The italics are mine.

I consider that the use of eserine in these circumstances would not only be futile, but would increase the tension by aggravating the cause of it. This is the exudation of albuminous and cellular material into the aqueous, causing blocking of the filtration angle.

When one has definitely diagnosed iritis and high tension has arisen in the course of it with increase of pain, if continued use of atropine and hot fomentos does not lower it, a simple paracentesis repeated on one or two days generally restores the tension to normal and the case progresses. But, given a diagnosis of iritis, eserine should not be used. At the least an occluded pupil is likely to follow.

When, however, a case is met with of acute glaucoma, with very contradictory signs and no history to guide one, the diagnosis between an acute primary and an acute secondary (to iritis) glaucoma is at times very difficult. Till a decision is reached the conflict will often induce as acute a psychic pain in the oculist as that in the eye of the patient.

Once it is decided that the glaucoma is not primary no further hesitation need be felt, for the remedy is simple and effective. A De Wecker's anterior sclerotomy should be done and the atropine pushed. A narrow Graefe knife is driven in at the horizontal meridian just behind the limbus at the angle of the anterior chamber, the counter-puncture being made so that it will emerge at a corresponding point. The incision is carried upwards as if for a cataract flap, but a bridge, consisting of conjunctiva and sclera, is left. This can be done under cocaine if plenty of time is given and several small injections of cocaine and adrenalin are made round the limbus. Free bleeding takes place and free drainage of the chamber, lasting

several days and atropine is used vigorously. The patient does not feel much if properly prepared, as the inflamed iris is not touched and in any case he cannot do any damage by squeezing. As the anterior chamber is generally deep in these iritic cases, it is not a difficult operation. Failing relief by simple paracentesis, this is undoubtedly the proper procedure. To use eserine in the presence of iritis is in my opinion in all circumstances fundamentally wrong and pathologically unsound. I make this criticism in no carping spirit, but because I believe the point to be a very important one.

Yours, etc.,

E. TEMPLE SMITH.

Macquarie Street, Sydney,  
July 20, 1926.

## Proceedings of the Australian Medical Boards.

### NEW SOUTH WALES.

THE undermentioned have been registered under the provisions of *The Medical Act*, 1912 and 1915, as duly qualified medical practitioners:

Barry, Alfred Broughton, M.B., Ch.M., 1926 (Univ. Sydney), Campbell Street, Parramatta.  
Edwards, Ernest Richard, M.B., B.S., 1923 (Univ. Melbourne), Mathoura, N.S.W.  
Harrison, Charles William, M.R.C.S. (England), 1926, L.R.C.P. (London), 1926. Sanitarium, Wahroonga.

#### For Additional Registration.

Ford, John Williams, Ch.M., 1926 (Univ. Sydney), North Wales, England.  
Stanley, Ronald Gordon, Ch.M., 1926 (Univ. Sydney), Tamworth.  
Pearce, Thomas Russell, D.P.H., 1926 (Univ. Sydney), Chatswood.

### QUEENSLAND.

THE undermentioned have been registered under the provisions of *The Medical Act* of 1925, as duly qualified medical practitioners:

Dalton, William Joseph, M.B. (Univ. Sydney), 1921, Mungindi.  
Delaney, James Joseph Patrick, M.B., 1924 (Univ. Sydney), Brisbane.  
Heydon, George Aloysius Makinson, M.B., Ch.M., 1908 (Univ. Sydney), Townsville.  
Moir, Alistair Edward Martin, M.B., Ch.M., 1926 (Univ. Sydney), Thargomindah.  
Ponsford, Frank William Augustus, M.B., B.S., 1908, D.P.H., 1922 (Univ. Melb.), Thursday Island.  
Walker, Dallas Bradlaugh, M.B., B.S., 1919 (Univ. New Zealand), 1919, F.R.C.S. (Edinburgh), 1923, F.R.C.S. (England), Richmond.  
Pattison, Charles Richard Maitland, Lic. Lic. Mid., 1902, R.C.P. (Ireland), Lic. Lic. Mid., 1902, R.C.S. (Ireland), Brisbane.  
Kelly, William Patrick, L.R.C.P. and S., 1906 (Ireland), F.R.C.S., 1911 (Ireland), D.P.H., R.C.P. and S., 1920 (Ireland), Brisbane.

## Books Received.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM, by G. H. Monrad-Krohn, M.D., (Oslo), M.R.C.P. (London), M.R.C.S. (England) with a Foreword by T. Grainger Stewart, M.D., F.R.C.P.; Third Edition; 1926. London: H. K. Lewis and Company, Limited. Crown 8vo., pp. 217, with illustrations. Price: 7s. 6d. net.

- THE SECRETION OF THE URINE**, by Arthur R. Cushny, M.A., M.D., LL.D., F.R.S.; Second Edition; 1926. London: Longmans, Green and Company, Limited. Demy 8vo., pp. 300, with diagrams. Price: 16s. net.
- THE PATHOLOGY, DIAGNOSIS AND TREATMENT OF FUNCTIONAL NERVOUS DISEASES**, by Paul Bousfield, M.R.C.S. (England), L.R.C.P. (London); 1926. London: William Heinemann (Medical Books) Limited. Crown 8vo., pp. 224. Price: 6s. net.
- MATERIA MEDICA AND THERAPEUTICS, INCLUDING PHARMACY AND PHARMACOLOGY**, by Reynold Webb Wilcox, M.A., M.D., LL.D., D.C.L.; Eleventh Edition, Revised in accordance with The U.S. Pharmacopoeia, X., with Index of Symptoms and Diseases; 1926. Philadelphia: P. Blakiston's Son and Company. Demy 8vo., pp. 810. Price: \$5.00 net.
- WHAT'S BEST TO EAT?** by S. Henning Belfrage, M.D. (London), M.R.C.S., L.R.C.P., with a practical supplement by Lucy H. Yates, M.C.A.; 1926. London: William Heinemann (Medical Books) Limited. Demy 8vo., pp. 211. Price: 7s. 6d. net.
- MESENTERIC VASCULAR OCCLUSION, SUPPLEMENTED BY AN APPENDIX OF SEVENTY-SIX ORIGINAL CASES**, by A. J. Cokkinis, M.B., B.S. (London), F.R.C.S. (England); 1926. London: Baillière, Tindall and Cox. Demy 8vo., pp. 171. Price: 10s. 6d. net.
- CATECHISM SERIES: MENTAL DISEASES**; 1926. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 78. Price: 1s. 6d. net.

## Medical Appointments.

Dr. George Sydney Thompson (B.M.A.) has been appointed Acting Medical Officer at Cairns, Acting Visiting Justice to His Majesty's Prison, Cairns, and Acting Health Officer for the purposes of *The Health Acts*, 1900 to 1922.

Dr. Herbert Leopold Ashton Shorter (B.M.A.) has been appointed Acting Medical Officer at Emerald, Queensland.

The designation of Dr. Leslie St. Vincent Welch (B.M.A.), Medical Officer, Department of Public Instruction, Queensland, has been changed to that of "Chief Medical Officer, Department of Public Instruction," as from June 1, 1926.

Dr. Lionel Oxborrow Betts (B.M.A.) has been appointed by His Excellency the Governor in Council, South Australia, to be an Honorary Commissioner to inquire into and report upon the care and treatment of crippled children and modern orthopaedic work generally in Great Britain, United States of America and the Continent of Europe.

Dr. R. J. Millard (B.M.A.) has been appointed a member of the Hospitals Advisory Board, New South Wales.

Dr. A. B. Russell (B.M.A.) has been appointed Health Officer for the district of Melville, South Australia.

Dr. F. J. E. Juttner (B.M.A.) has been appointed Medical Officer for the district of Tanunda, South Australia.

Dr. Francis F. D'Arcy (B.M.A.) has been appointed Certifying Medical Practitioner at South Yarra, Victoria, pursuant to the provisions of the *Workers' Compensation Acts*.

Dr. William S. McGillivray (B.M.A.), has been appointed Deputy Commissioner of Public Health, Western Australia.

Dr. Jack Roland Stanley Grose Beard has been appointed Honorary Assistant Gynaecologist at the Adelaide Hospital, South Australia.

## Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xiii.

**ECHUCA DISTRICT HOSPITAL:** Resident Medical Officer.  
**MELBOURNE HOSPITAL:** Clinical Assistant, Ear, Nose and Throat Department; Medical Clinical Assistant.  
**WESTERN AUSTRALIAN STATE PUBLIC SERVICE:** Inspector-General of the Insane.  
**WOMEN'S HOSPITAL, MELBOURNE:** Medical Superintendent.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
	Australian Natives' Association. Ashfield and District Friendly Societies Dispensary. Balmain United Friendly Societies Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies Dispensary. North Sydney United Friendly Societies People's Prudential Benefit Society. Phoenix Mutual Provident Society.
<b>NEW SOUTH WALES:</b> Honorary Secretary, 30-34, Elizabeth Street, Sydney.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
<b>VICTORIAN:</b> Honorary Secretary, Medical Society Hall, East Melbourne.	Brisbane United Friendly Society Institute. Stannary Hills Hospital. Cook District Hospital.
<b>QUEENSLAND:</b> Honorary Secretary B.M.A. Building, Adelaide Street, Brisbane.	Contract Practice Appointments at Ceduna, Wudinna (Central Eyre's Peninsula), Murat Bay and other West Coast of South Australia Districts.
<b>SOUTH AUSTRALIAN:</b> Honorary Secretary, 12, North Terrace, Adelaide.	All Contract Practice Appointments in Western Australia.
<b>WESTERN AUSTRALIAN:</b> Honorary Secretary, Saint George's Terrace, Perth.	Friendly Society Lodges, Wellington, New Zealand.
<b>NEW ZEALAND</b> (WELLINGTON DIVISION): Honorary Secretary, Wellington.	

## Diary for the Month.

- AUG. 10.—Tasmanian Branch, B.M.A.: Branch.  
 AUG. 10.—New South Wales Branch, B.M.A.: Ethics Committee.  
 AUG. 10.—Section of Medicine, New South Wales Branch, B.M.A.  
 AUG. 12.—Victorian Branch, B.M.A.: Council.  
 AUG. 12.—New South Wales Branch, B.M.A.: Clinical Meeting.  
 AUG. 13.—Queensland Branch, B.M.A.: Council.  
 AUG. 16.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
 AUG. 17.—Tasmanian Branch, B.M.A.: Council.  
 AUG. 17.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
 AUG. 18.—Western Australian Branch, B.M.A.: Branch.  
 AUG. 18.—Central Northern Medical Association, New South Wales.  
 AUG. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 AUG. 24.—Illawarra Suburbs Medical Association, New South Wales.  
 AUG. 25.—Victorian Branch, B.M.A.: Council.  
 AUG. 26.—New South Wales Branch, B.M.A.: Branch.  
 AUG. 26.—South Australian Branch, B.M.A.: Branch.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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